Mustang Daily

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[NO. 10]

Wednesday, October 6, 1982 | California Polytechnic State University, San Luis Obispo | Volume 47, ~~No. 137~~

Mustang Daily — Amy Egbert

It's a dog's life when your owner eats lunch and leaves you in the back of the truck. Such was the case for this canine last week in a Cal Poly parking lot.

Research says Poly's leading in grad turnout

Editor's Note: This is the first in a two-part series. The second part will address reasons behind drop-out rates within various departments.

by Maria Casas
Staff Writer

As the new school year is upon us, another crop of students will be looking toward June graduation with anticipation.

At Cal Poly, a higher number of students will complete their education and graduate than at any other campus in the CSU system, according to a study conducted by the Division of Institutional Research, Office of the Chancellor.

The study consisted of tracking first time freshmen of Fall quarter 1973 for seven academic years. One section of the report consisted of continuation rates for these freshmen and another of graduation rates. And although the study was done some time ago, the results still hold, according to the Director of Institutional Research, Lowell H. Dunigan.

"This is the most recent data because it does take six or seven years to compile," said Dunigan. "It's good data on graduation rates and the results are probably the same since the fall of 1979-80. We've beeen turning away more and more applicants every year. For the campus as a whole, we take one out of every two applicants. This selectivity of applicants increases persistency and the rate will increase. I don't think it will go down," he said.

In Fall 1973, 1,923 freshmen enrolled. In the fall of 1974, 1,460, or 76 percent, returned; thus, 24 percent was lost.

"There is a large dropout rate between the first and second years," said Dunigan. "If we could get freshmen on the right track, we could cut that number in half."

By Fall 1975, 1,188, or 61.8 percent, returned with another 14.1 percent gone; 1,067 returned for their senior year, or 55.5 percent, with 6.3 percent not showing.

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Proposed budget exceeds $1 billion

by Mary Kelly
Staff Writer

At the first meeting of the Cal Poly Administrative Council Monday, the tentative 1983-84 budget for the California State University system was discussed. It will be sent to the governor in January for approval.

Last year's budget was $942,548,643, but the CSU Chancellor's Office seeks a budget increase for 1983-84 that would raise it to over a billion dollars.

According to James Landreth, Cal Poly's director of Business Affairs, there are three components in the budget.

The first is the base line budget which accounts for price increases due to inflation, increases in staff benefit rates, and utilities. This year the Chancellor's Office is asking for a state-wide increase of $70,451 in this category.

Second is the program maintenance proposals which adjust the budget for changes in workload factors, an increase or decrease in the enrollment of students, and new facilities. This year the CSU is asking for a $13,243 increase.

The third component of the budget is the program change proposals which are designed to improve funding of existing programs, make these programs more effective in achieving objectives, and funding new programs that were not on the previous budget. The CSU is asking for an increase of $16,214 in this category.

This year, 18 program change proposals were submitted, and only two are receiving special consideration. They are Cal Poly, San Luis Obispo, for a computer-aided productivity laboratory, and the University of California at Los Angeles for a learning assistant resource center.

Program change proposals are considered for things such as instruction faculty, teaching support, instructional support services, and computing support, as well as recognizing technological advances in engineering, business and computer science.

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Philosophy head returns

by Anne French
Staff Writer

"It's nice to be back," said the head of the Philosophy department, Kendrick Walker. For the past year, Walker has been a visiting fellow on sabbatical to Princeton University. His fellowship entailed attending classes and seminars, writing, and doing research.

Walker said he enjoyed sitting on the other side of the podium in seminar. "Instructors sometimes lose touch with their students," said Walker. He said he received a renewed appreciation for being a student. He spoke of the wonderful system Princeton has of preceptorial discussion. This meant lab for a class would be conducted by a fellow professor and not by someone of lesser rank.

Regarding the Princeton campus, Walker described it as "stunning." He drew comparisons between Cal Poly and Princeton in that both institutions are located in small towns, both are of some distance to large cities, and both campuses were a bit out of the city. Walker described the New Jersey community as "privileged, plugged into the system," and the school as having a good, cultural mix with "all walks of life," said Walker.

As an undergraduate student, he originally majored in American Studies at Berkeley when colleagues introduced him to the study of Philosophy. While completing his doctorate, "Philosophers of the Twentieth Century," he taught logic at Mount St. Mary's College in Los Angeles.

He came to Cal Poly in 1973 as an Assistant Professor, "way back when California was tanked so high for its public education system," said a frowning Walker. He said since Proposition 13 the school system has suffered immeasurably.

Although there is no degree for philosophy offered at the Cal Poly campus, there is now a minor program. Walker said this is a step in the right direction.

For as long as he has served as department head, Walker has resided on a 40-foot sailboat in Morro Bay. He enjoys the solitude and outdoor environment. He loves San Luis Obispo and says he hasn't been any place he'd rather live.

Of Cal Poly, Walker said, "This is a lovely campus, with good junior faculty members and a well-trained, established senior faculty. A nice blend. With room for improvement, Poly does well what it sets out to do."

Claudio Silva

Cal Poly Professor Claudio Silva dies

Cal Poly Spanish instructor, Claudio Y. Silva, Ph.D, died of cancer on Sunday morning after a lengthy illness.

Silva was born in Miami, Arizona on December 15, 1928. He has served with Intelligence in the U.S. Air Force. Silva received his B.A. in Business from Claremont Mens College, his M.A. and Ph.D in Spanish from University of Southern California, Los Angeles.

Silva started his teaching career in a junior high school. Eleven years were spent at La Serna High School and five years at San Jose State Universtiy.

Arriving at Cal Poly in 1975, Silva has served on the Humanities Lecture Series Committee, the Commencement Committee and the President's Commission on International Studies and Foreign Languages.

The family has asked that donations be made to the American Cancer Society, 1124 Nipomo, SLO, 93401.

The Adventures of Captain Pig

by Peter Avanzino

Newsline

USSR arms talks continue

WASHINGTON (AP) — Under orders "to move as rapidly as the situation permits," U.S. arms control negotiator Edward L. Rowny is entering a second round of talks with the Soviet Union convinced that Americans would abandon the nuclear freeze movement if they understood the administration's treaty proposal.

Freezing weapons at current levels, as Soviet President Leonid I. Brezhnev suggested last May, or only trimming stockpiles of intercontinental ballistic missiles and long-range bombers would heighten the risk of nuclear war, Rowny said in an interview before flying to Geneva for the new round of talks beginning Wednesday.

Rowny's reasoning: It takes the sort of deep reductions proposed by the United States to correct the 5-2 Soviet lead in missile power, or throw-weight. That edge, Rowny and other U.S. strategists theorize, heightens the risk of a first strike.

Third resister convicted

CLEVELAND (AP) — A federal court jury on Tuesday convicted Mark Arden Schmucker, a Mennonite college student, of failing to register for the military draft. He was the third person convicted of the charge in trials this year.

The eight women and four men on the panel deliberated one hour and four minutes before returning the verdict in the courtroom of U.S. District Judge Ann Aldrich.

Strychnine found in Tylenol

OROVILLE, Calif. (AP) — Strychnine was found in two bottles of Extra-Strength Tylenol capsules here and a man who took the medication suffered convulsions, federal officials said today.

The U.S. Food and Drug Administration said McNeil Consumer Products Co., which makes Tylenol, is telling retailers nationwide to withdraw non-prescription Extra-Strength Tylenol capsules and regular-strength Tylenol capsules from sale.

The man took the poisoned capsules Thursday, one day after cyanide-laced Extra-Strength Tylenol capsules began claiming their first victims. Seven died after taking capsules in the Chicago area.

There is no evidence the discovery of strychnine in the capsules is related to the seven Chicago-area deaths, said Robert Kniffen, a spokesman for McNeil, a subsidiary of Johnson & Johnson.

Both the manufacturer and the federal agency warned consumers against taking any Tylenol capsules.

McNeil has stopped production of non-prescription Tylenol capsules.

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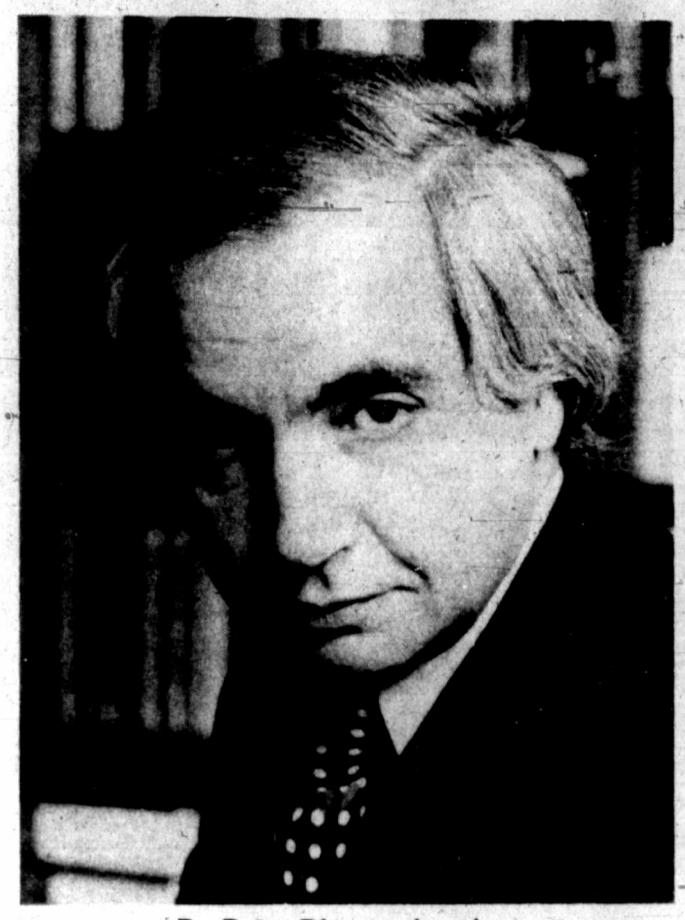
Lecture series to begin

A talk on technology by Peter Diamandopolous, PhD, president of Sonoma State University, on Thursday, Oct. 7, will open the 11th annual Arts and Humanities Lecture Series at Cal Poly.

The lecture on "Technology: Problems and Prospects" will begin at 11 a.m. in Room 220 of the University Union. The lecture is open to the public without charge.

Diamandopolous is expected to focus on the characteristics of modern technology, exploring its challenges to public policy, social aspirations and private morality.

His aim, he has said, is to "underscore the uncertain relation between technological determination and individual freedom . . . to suggest the responsibilities of higher education in preserving a precarious but creative balance between scientific advances and innate human limitations."



Dr. Peter Diamandopolous

Born on the Greek island of Crete 52 years ago, Diamandopolous received a diploma in mathematics and natural sciences from Athens College in 1947.

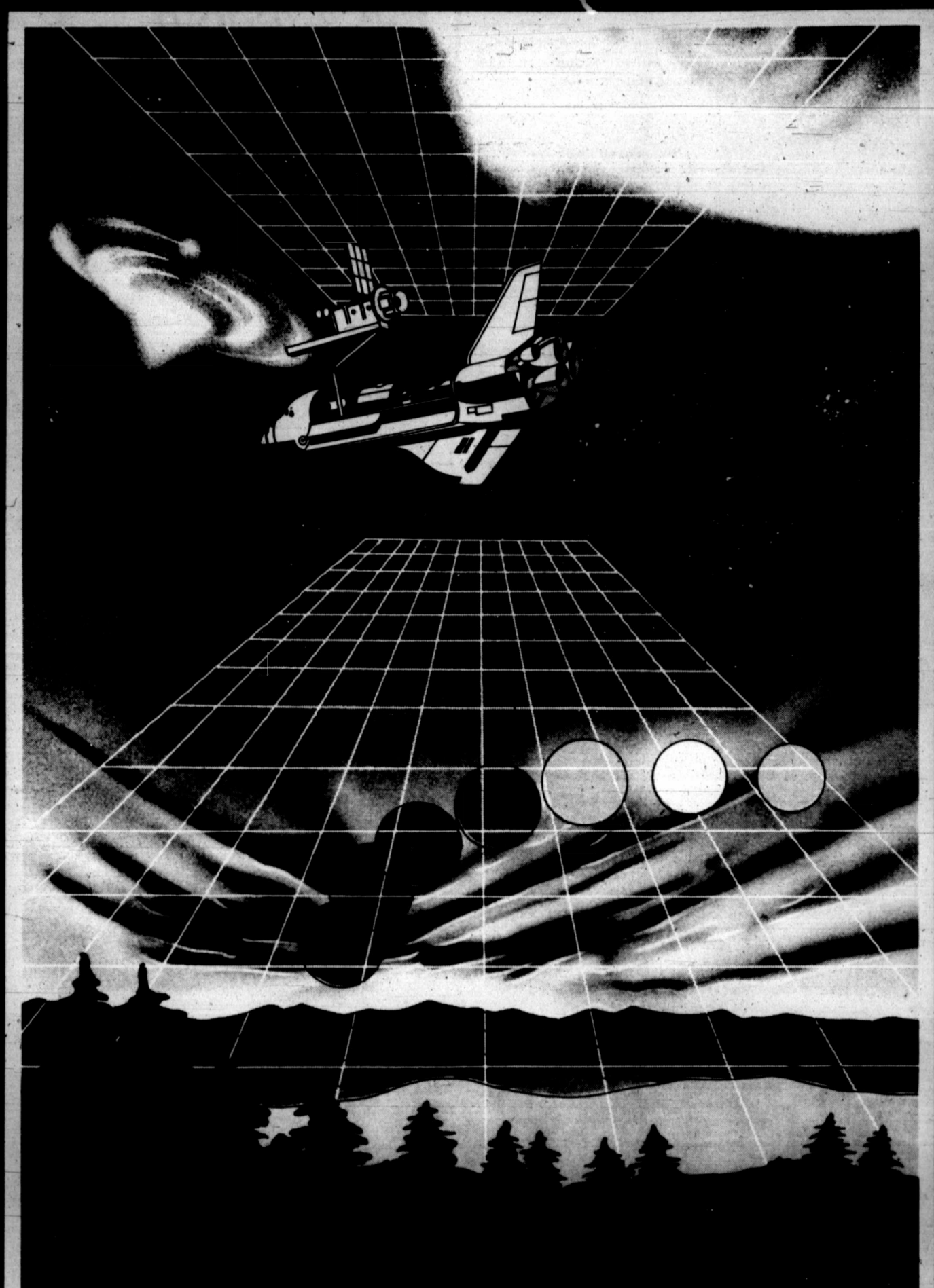
He earned his bachelor's master's, and doctoral degrees from Harvard University. His doctorate, granted in 1957, is in philosophy and classics.

Diamondopolous taught and held administrative positions at Bates College (Maine), University of Virginia, Swarthmore College (Pa.), Univeristy of Maryland, American University (D.C.), and the Adlai Stevenson Institute (Ill.). Before he accepted the presidency at Sonoma, he was chairman of the Department of Philosophy and the History of Ideas at Brandeis University (Mass.).

He is the author of articles and reviews in professional journals dealing with the history of philosophy, the history of science, and public policy.

GRADUATING ENGINEERS

REACH FOR TOMORROW WITH MARTIN MARIETTA AEROSPACE

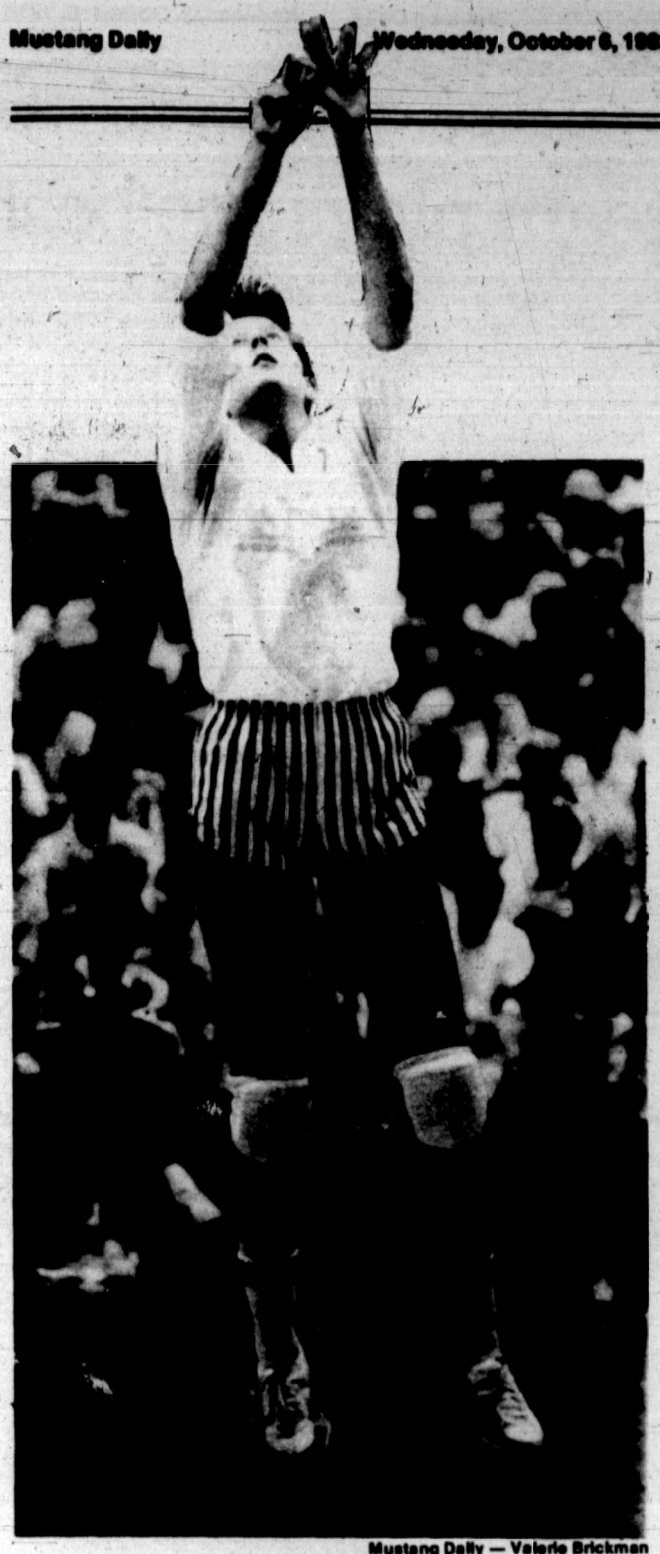


October 13, 14

MARTIN MARIETTA

MARTIN MARIETTA AT VANDENBERG

Sports



Mustang Daily — Valerie Brickman

Tina Taylor

Cute little kid, or feisty little twerp?

Only Tina Taylor knows for sure

Cal Poly head women's volleyball coach, Mike Wilton, has called Tina Taylor "that cute little kid," and "a fiesty little twerp."

Which one is she?

"Both," Taylor laughed. "When I came here (in 1979) I was a little twerp. I would say right now my basis of claim is I am a fiesty player on the court. I'm also aggressive out there. I am the type of player who gets everyone else fired up on the court. I'm a pretty hyper person anyway."

This is quite evident if you have ever had the pleasure of watching this 5-foot-8 lady do her thing on the court. It's obvious Taylor likes to have a good time out there when she goes into her little dance.

"There's nothing better than when I set a ball and someone just puts it down," the senior said. "It just fires me up to have someone, or the whole team, doing just great out there. It just makes me feel like dancing."

But dancing isn't the only thing which Taylor has been doing on the court. She has also done a lot of running around. In the first 16 matches of 1982, of which the Mustangs have won 13, Tina has run a good mile-and-a-half tracking down passes to set.

"I think my strongest point on the court is my speed and ability to get to a pass and set it," remarked the 21-year-old. "I can't really get upset when the passes aren't that good and I do have to run for them. If I do get upset, then I get everone else down. I just tell the passers, 'that's okay.' And I hope with that attitude the passers will get a little more confident."

Confidence is something Cal Poly lacks a certain amount of right now. But, the season is young. And Taylor, for one, knows it will pass.

"We're still in up-and-down stages," she said. "We're still ironing out some wrinkles. We're still getting to know each other out there. All good teams go through this to an extent. It won't be happening in December, though."

December is the month all college teams in the U.S. are shooting for. It's playoff time. The month when it counts the most. It's the Nationals. The Final Four. A 1982 champion. Taylor, like the rest of the team, thinks the Mustangs will be there. For Taylor, along with seniors Wendy Hooper and Jolene Huffman, it's their last chance.

"This has been the most intense year for me," said Taylor, who is the first female to play all four years under Wilton. "I can feel how close we are in going to Nationals. We have more depth this year than last year (when the Mustangs finished tied for fifth in the nation 41-8). Wendy came back having improved a lot. Terri (Purling) can now block and hit right-side like she has never done before. And Sandy (Aughinbaugh) is playing better than she did last year. Everyone has just improved."

Especially Taylor. She was called upon during the United States Volleyball Association (USVBA) season to do something she had little experience in doing — setting. Through her first three years in a Poly uniform, Taylor had been a right-side hitter. She was just a part of the offense. Now, the offense is revolving around her.

"I started setting during USVBA basically because there was no one else to do it," commented Taylor, who is the team's co-captain with Aughinbaugh. Taylor is the captain on the floor. "I worked with Tino (assistant coach Tino Reyes) some. I had relatively okay hands and had enough technique down to build upon. The big issue was the experience.

"Coming into the year I had a lot of people telling me how good Dede (incoming freshman Dede Bodnar) was. But I told myself no one was going to start in front of me. And I worked toward that goal all summer. I worked out some with Sandy, but mostly I worked out by myself. I ran and lifted weights. Sometimes I would go down and talk to Mike and run with him. It was kind of a good feeling in a sense because I was doing this for myself. I wasn't out there for anyone else, and I didn't have to impress anybody."

Taylor did impress people with her play in USVBA. She was an All-American honorable mention selection in the *Volleyball Monthly* pre-season picks. Taylor, though, is not all impressed with portions of her play thus far.

"My blocking is the worst part of my game right now," she said. "I've never really been that bad of a blocker. I've done it as a right-side hitter the last three years. I should be putting more time into blocking in practice. I think I"m concentrating more on getting to the ball once it passes the block. But that (getting to the

Please see page 6

Forget about homestand image, soccer team plays the best

by Mark Gang
Staff Writer

What a difference a division makes.

That must be what Cal Poly men's soccer coach Wolfgang Gartner is thinking as his team prepares for its fifth match against a Division I team this season. The game, against Loyola-Marymount, will take place tonight at Mustang Stadium at 7:30.

The Mustangs sport a perfect 2-0-1 mark against Division II teams and a dismal 0-4 record against Division I schools. However, a look at the opponents shows that none of those teams have been cold farina.

For example, the Stanford Cardinals, who beat the Mustangs 2-1 earlier this year, are ranked No. 4 in the Far West. The Gauchos of UCSB, who also defeated Poly 2-1, are ranked sixth in the Far West. The Far West also includes such teams as San Diego State, number one in the nation, and the University of San Francisco, the Division I champs last year.

Loyola, called the Lions, is in a conference with San Diego State, UCLA and USC, to name a few.

Recently, Gartner explained his reason for scheduling every non-league game with a Division I team. "We want people to come out and see the best college soccer around. They don't come and pay for nothing. No one around plays a schedule like we do. We don't care if they (the spectators) think we are good, we at least know that the other team is," he said.

Not only that, but the experience the Mustangs get playing against some of the best soccer players in the nation can't do anything but help during league matches.

Looking down the road, it seems the Mustangs will be getting lots of experience, with the likes of Pacific, Fresno State, Santa Clara and St. Mary's all waiting in the wings.

But in the meantime, Gartner and his players will be setting their sights on one thing — their first win against a Division I school. They hope that happens tonight.

kid or twerp?

From page 5

ball for the set) should be natural."

One of the teams the Mustangs must beat to get to the Nationals will invade the Main Gymnasium Friday evening. The University of the Pacific, where this year's National Championships are being held, will be looking for a bit of revenge. Last week Poly whipped the Tigers in Stockton, 12-15, 15-10, 18-16, 15-4. Friday's affair is scheduled for 7:30 p.m.

"It's going to be an awesome show versus UOP," Taylor said. "Be there."

More graduate from Poly

From page 1

Of this freshmen class, 875 graduated and received their bachelor's degree. Ten people finished in three years, 240 in four years, 393 in five years, 158 in six years and 74 in seven years.

Therefore, 13 percent of the class graduated in four years, 20 percent in five years, eight percent in six years and four percent in seven years. Overall, about 45.5 percent of that freshman class graduated at Cal Poly. This is the highest rate in the CSU system.

Following Cal Poly were: Chico with 43.4 percent of their 1973 freshman class graduating, Fresno with 42.8 percent, Fullerton with 36.8 percent and Long Beach with 35.3 percent.

Cal Poly is on top because "it's a good school," said Admissions Officer Dave Snyder.

"Students have to declare a major," said Snyder. "Students come here with a heavy degree of commitment to a program and getting an education."

Dunigan feels there are three major reasons for Cal Poly's good standing.

First, said Dunigan, "all but 13 percent of students come from outside San Luis Obispo county. They are moving here for school so it must be serious," he added.

Secondly, over 80 percent of total enrollment in fall 1981 was in such specialized fields as agriculture, architecture, engineering, graphic communications, dietetics, biochemistry and computer science, which are not widely available at other campuses within the system," said Dunigan.

"The campus also has the highest proportion of laboratory instruction in the system which is part of the school's philosophy. Apparently it doesn't hurt," he said.

Cal Poly seeks computer-aided lab

From page 1

The Administrative Council is a board that participates in exchanges of information, therefore, budget adjustments are just tentative at this point.

The budget for all 19 state universities goes before California's new governor in January; when he approves it, it will be sent to the state legislature where a two-thirds vote is required to pass the budget.

Classified

Student, faculty & staff daily rates are $2.00 for a 3 line minimum and .50¢ for each additional line. Weekly rates are $8.00 for the 3 line minimum and $2.00 for each additional line. Business/off campus rates are also available.

Payable by check only to Mustang Daily, GRC Bldg. Rm. 226.

Announcements

FREE TUESDAY EVENING? COME TO VOLUTEER NIGHT! LEARN HOW TO HAVE FUN WHILE HELPING OUT YOUR COMMUNITY. REFRESHMENTS AND SLIDESHOW. 7:30 IN MUSTANG LOUNGE.
(10-5)

Exper. vocalist/trumpet wants to join rock/New Wave or Jazz band to earn money playing clubs, parties, and special events. Contact Ed at 543-9818.
(10-9)

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(10/13)

AMERICAN DANCE COUPON Present this coupon to the receptionist at Pat Jackson's American Dance and receive two (2) FREE CLASSES of dance in Jazz, Tap, Ballet, or Aerobics. If you are a Cal Poly Student and new to the studio, this $10 coupon is yours! 1409 Monterey (Just above the Railroad overpass across from KC Nursery) 543-4409. Expires Oct. 31st.
(10-6)

BETA KAPPAS- LAST YEAR WAS GREAT. THIS YEAR SHOULD BE FANTASTIC.
(10-6)

Rental Housing

Room for rent, not furn. Pool, jacuzzi, tennis. Female, non-smoker, neat, pets? $180. Call 541-0830 before 8 am.

Services

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(10-19)

Push comes to shove

This is one kicking, slapping, pushing and shoving incident on the Poly campus that won't make front page headlines.

The incident occurred to more than one concert-goer at last Saturday's concert in the Main Gym. During the Beat's performance "seating arrangements" in the first several rows were prized possessions that were gained by petty, yet vicious, violence certain Beat fans saw fit to use.

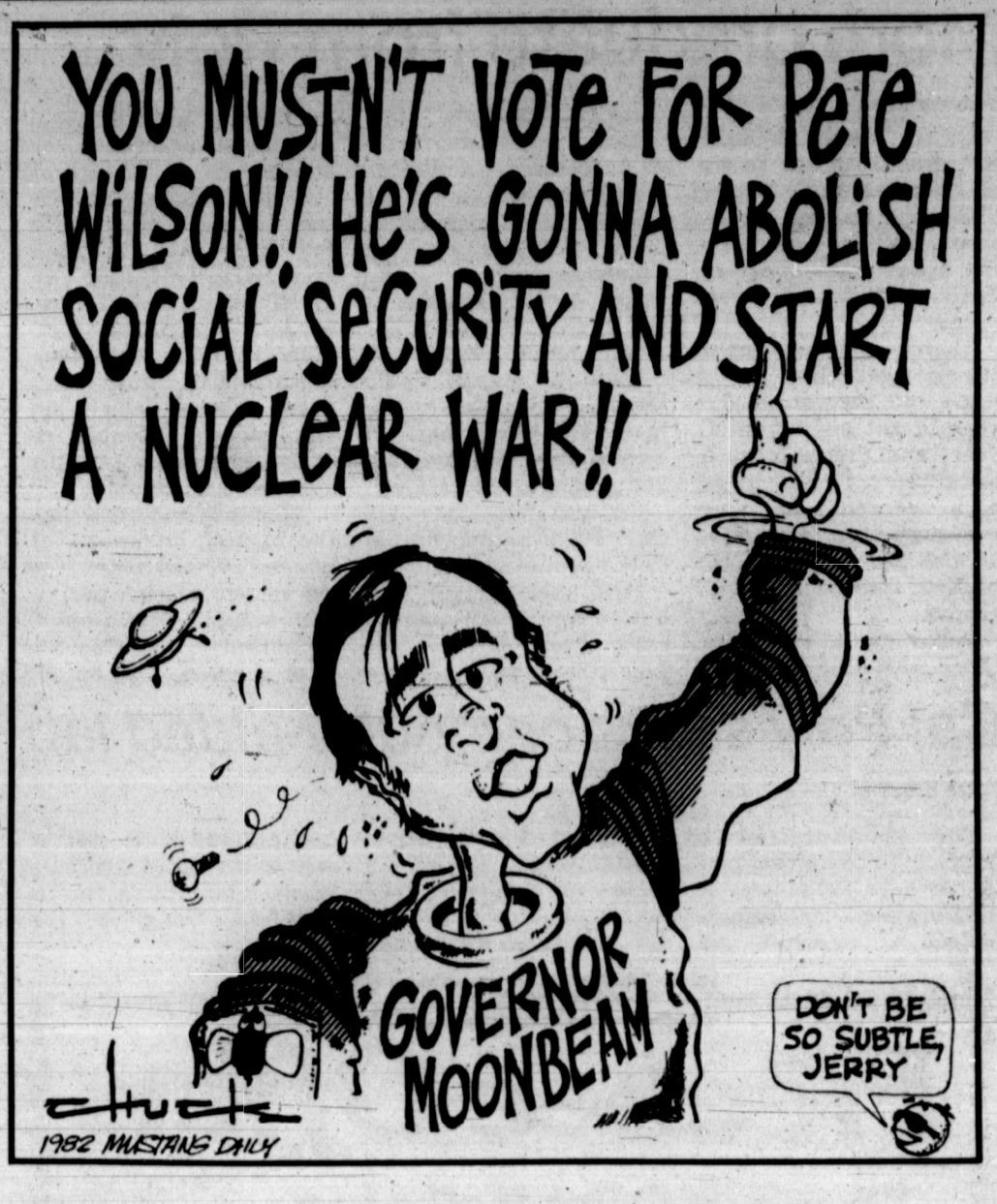
According to one concert-goer in the front row, two girls were slapping each other over choice seats, while others dragged already-seated fans off their chairs or literally dove over one another to reach the front. The front row of chairs, which were tied together by the ASI Concerts Committee, became nonexistent after being knocked down in the frenzy.

This scene brings back memories of last spring's Pretenders concert when the audience rushed the stage. However, it is unlikely that the type of band playing last weekend provoked the behavior. Human nature being what it is, a Liberace concert could conceivably have elicited the same response if the same conditions were present.

While only a small minority of the audience was pushing and shoving, the fact that it was even allowed to happen for any length of time is ridiculous. It is stupid that some fans sit in line up to two days for front row seats only to be pushed aside by other people. Admittedly, many music fans put up with mass amounts of people and crowding to hear their favorite groups but other fans don't enjoy putting up with rude, impersonal behavior like that exhibited at the Beat concert.

Whether it be screening out concert-goers who are drunk or hiring more security personnel to help maintain at least a nonviolent level of exuberance, the *Mustang Daily* Editorial Board believes steps need to be taken to make concerts at Cal Poy more enjoyable and safe for all.

A repeat incident like that of last weekend should be prevented. To let it continue at concerts would be condoning it, which reflects badly on the Concert Committee and the university.



Letters

Not a waste

Dear Editor:

We appreciate your interest and willingness to publish articles dealing with university acts and practices—and more particularly, the recent article regarding the new admissions selection plan. Overall, the piece was done well and presented the facts of this complex process in an understandable and factual manner. There are, however, two points I would like to clarify: first, the headline implied that the admissions plan was responsible for the reduction in enrollment and second, a misquote had been construed to imply that I think General Education (GE) is a waste of time.

With regard to the enrollment reduction, please be aware that the admissions plan has no influence on the number of students to be enrolled. Enrollment planning is a separate process and its only connection to the admissions process is the determination of new student admissions quotas.

As to the second point, I want you to be aware that I do not believe General Education is a "waste of time." To the contrary, it is the cornerstone upon which a student's education is founded. A major purpose of any college or univeristy is to educate, not only in technical or professional fields, but also to provide the opportunity for students to achieve the ability to think and communicate clearly, to strengthen their quantitative skills, to learn and understand about themselves, their processes of curiosity and inquiry. General Education provides students this opportunity.

Dave Snyder
Admissions Officer

Letters

Misunderstood intentions

Dear Editor,

This is in regards to the opposition of my letter which was published on Sept. 28th. First of all, I would like to mention that Ms. Cory is way off-base in her rebutal.

The class that I taught was advertised for three weeks prior to the start of the class. It was also spread by word of mouth. In my class, I stress *only* the simple and easy techniques. I also show how to make them work effectively. As far as an "emergency situation" is concerned, I put my students there by actually attacking them.

Before I do that, I let my students know of my intentions and philosophy. It is to prepare them for an actual attack under stress. I first become familiar with my students with other techniques and then move to the attacks. No one is hurt by me. I let them practice their favorite techniques on me for them to find out which ones work and which don't. As far as taking "unnecessary risks", I encourage that they be avoided whenever possible.

I in *no* way insinuate that women are responsible for the attacks upon them. No information in my letter had anything to do with this. I believe that Ms. Cory is making people think that I believe this. It is not the case.

Maybe Ms. Cory misunderstood the point that I was trying to make. The point is: I want to make women aware that they do have a fighting chance, chance to get away in a bad situation. In talking with rape victims I have found that they generally freeze up and aren't able to do anything to help themselves.

By the end of my full-length classes, and without striking the students, I try to take their clothes off. I tell this to them before I do it. This gives them an out. I would like to know if Ms. Cory considers this an emergency situation. I think that it is. I seriously try to remove articles of clothing. However, I won't go all the way. The truth of the matter is, I can't even get that far most of the time. I get bruised, bitten, scratched and punched to help my students learn how to defend themselves.

I believe that Ms. Cory grossly misunderstood my intentions and the point that I was making. Maybe she might take a different stand now. I have also considered that I do not have the answers that might solve this terrible problem. I know that I don't. Nobody does. I was just trying to help, that's all. If Ms. Cory would like to discuss this matter with me, I would be more than willing to. 560 Hathaway #1 S.L.O.

Kenny Fall

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Daily policy

Letters and press releases may be submitted to the *Mustang Daily* by bringing them to the *Daily* office in Room 226 of the Graphic Arts Building, or by sending them to: Editor, *Mustang Daily*, GrC 226, Cal Poly, San Luis Obispo, CA 93407. Letters must be double-space typed and include the writers' signature and phone numbers.

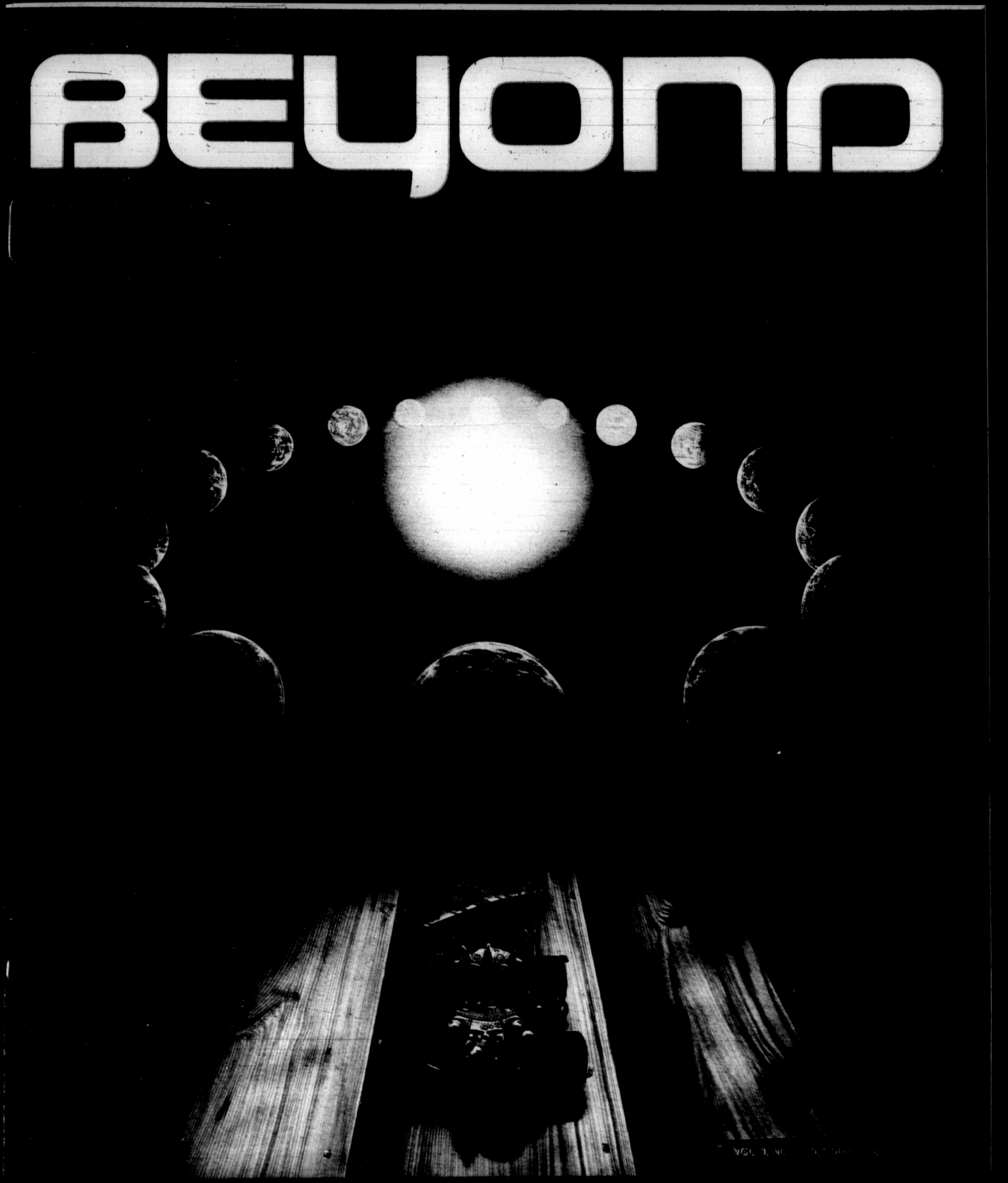
Editors reserve the right to edit letters for length and style, and to omit libelous statements. Letters should be kept as short as possible.

The *Mustang Daily* encourages readers' opinions, criticisms and comments on news stories, letters and editorials. To ensure that letters will be considered for the next edition, they should be submitted to the *Daily* office by 10 a.m.

Press releases should be submitted to the *Daily* at least a week before they should run. All releases must include phone numbers and names of the people or organizations involved, in case further information is required.

All unsigned editorials reflect the majority view of the *Mustang Daily* Editorial Board. The board consists of Editor Robin Lewis, Managing Editor RoseAnn Wentz and Editorial Assistants Twyla Thomas and Nancy Lewis.

BEYOND



1983 FORD MUSTANG GT

THE BOSS:
ONE HOT PIECE OF AMERICAN STEEL.

Mustang GT for 1983.

It begins in a river of red-hot steel.

It's cast and crafted and bolted together to be the Boss. This year, the 5.0 liter High Output engine has a new four-barrel carburetor for even more muscle: 175 horsepower. It's sprung with a performance suspension and packs 247 lb.-ft. of torque @ 2400 rpm* and a four-speed transmission.

It comes complete with a real bad attitude about being anything but the Boss.

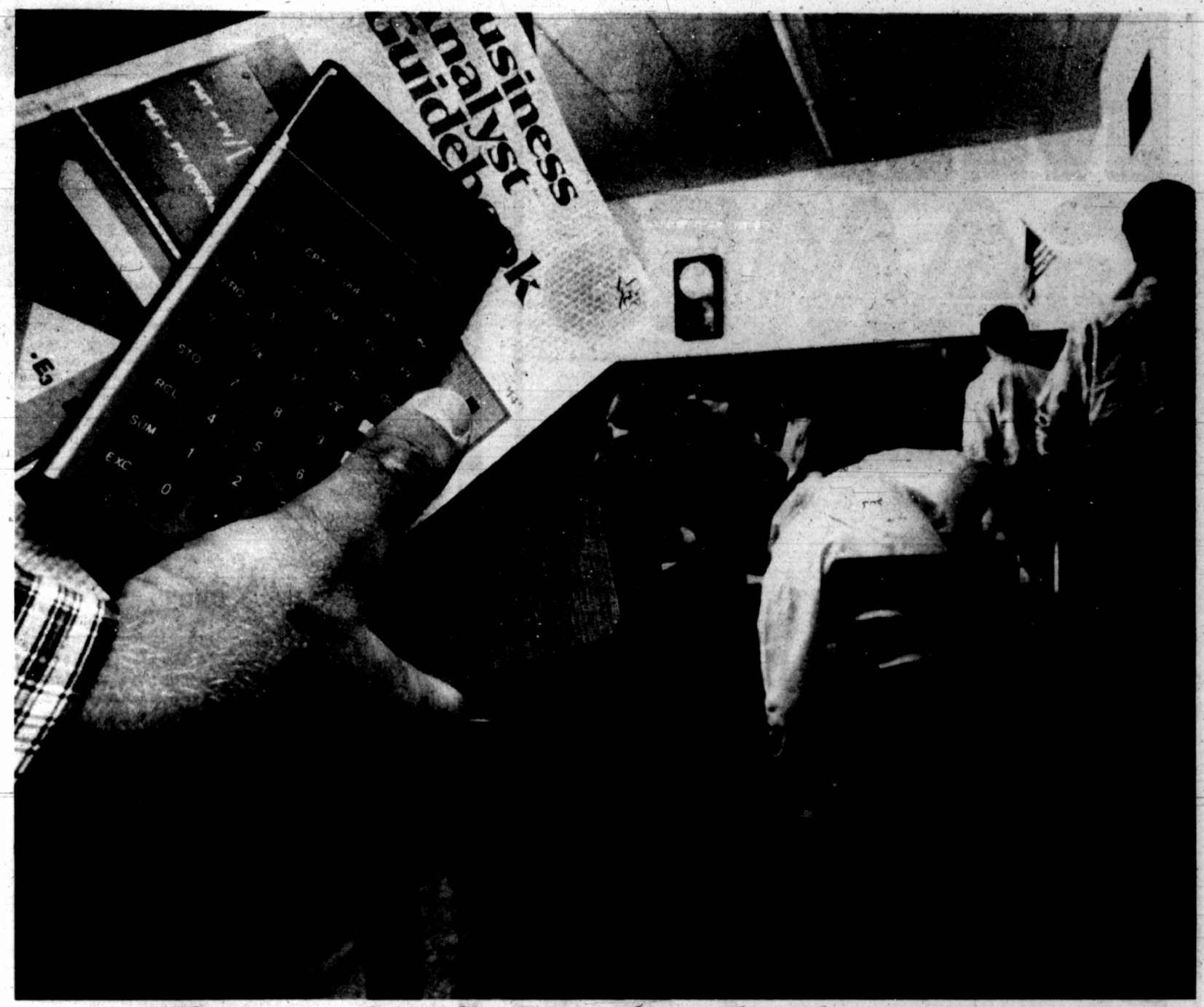
Mustang GT for 1983. It's one hot piece of American steel. Get it together. Buckle up.

*Net torque and horsepower as measured by SAE standard J1349.

HAVE YOU DRIVEN A FORD...LATELY?

Ford

FORD DIVISION



This calculator thinks business. The TI Student Business Analyst.™

If there's one thing undergrad business students have always needed, this is it: an affordable, business-oriented calculator. The Student Business Analyst. Its built-in business formulas let you perform complicated finance, accounting and statistical functions—the ones that usually require a lot of time and a stack of reference books, like present and future value calculations, amortizations and balloon payments.

It all means you spend less time calculating, and more time learning. One keystroke takes the place of many.

The calculator is just part of the package. You also get a book that follows most business courses: the *Business Analyst Guidebook*. Business professors helped us write it, to help you get the most out of calculator and classroom. A powerful combination.

Think business. With the Student Business Analyst.

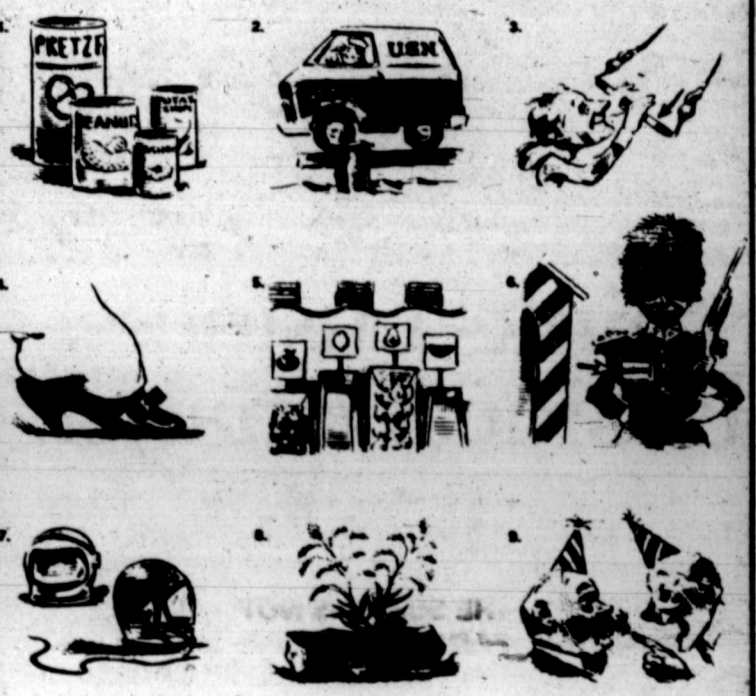
TEXAS INSTRUMENTS

MIND GAMES

A not-for-credit mind-bender fiendishly devised by GAMES magazine to drive you bananas.

Picture Palindromes

Each of the pictures below represents a palindromic phrase—a phrase spelled the same forward and back. The answer to each picture can be written on the corresponding dashes, one letter per space. For example, the first picture shows RACE CAR. We'll leave the other 9 for you to reflect on.



Example: RACE CAR

1. _____ ____
2. ____ ___
3. _____ ____
4. ___ ___ _ ____
5. __ _____ __ _____
6. _____ _____
7. _____ ____
8. _____ _____ ___
9. _____ _____ ____

BEYOND

COVER
"Ring Around the Sun" is the work of Tim White, one of England's top illustrators. His book, The Fantasy and Science Fiction World of Tim White, *is available through New English Library.*

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output

BY BOB WOODS

IF ONLY LUDWIG VAN HAD ONE

rom those wonderful folks who've given us digital watches that do everyhing but make coffee in the morning, computer wizardry now gives us elecronic music composers.

New England Digital Corp. and Hazelcom Industries Ltd. have developed iano-like computer keyboards that transcribe whatever is played on them. On a second keyboard, lyrics and chord notations also can be added before he score is printed. Depending on features, the units will cost between 15,000 and $50,000.

The advantages of such electronic printing systems may be realized by usic publishers, who could store compositions in a computer and print opies as needed. In fact, G. Schirmer, Inc., one of the nation's oldest and argest music publishing houses, is thinking about buying such a device.

Out in Palo Alto, CA, at Xerox Corp.'s research laboratories, one of the ost advanced digital music editors has been assembled as a student experment, although the company says it has no intentions of selling the machine. ays a Xerox computer scientist: "It could be useful for quick-turnaroundusic-movie music, TV commercials, and show tunes."

So, if you've been thinking of a great gift idea for Barry Manilow . . .

PRIVATE SPACE SHUTTLE?

s the space shuttle Columbia conues its success in re-establishing he United States' presence in space, private company is looking to buy shuttle and turn it into a commerial operation.

The Space Transportation Co. STC), located in Princeton, NJ, has roposed the idea to NASA, offering o fund the building of the fifth orbier, which is still not budgeted by he federal space agency. The origial shuttle fleet master plan calls for ive orbiters. When STC saw the overnment's reluctance to go head with the fifth shuttle, it made s proposal. NASA has yet to decide hether to accept the offer.

STC has outlined its initiatives in heir venture:

1) Set an example to the world of he potential of free enterprise in pace matters.

2) Lead to increases in the commercial uses of the U.S. Space ransportation System (the official ame of the shuttle program).

3 Improve the U.S. presence as a eader in the world aerospace markets.

4) Improve the U.S. balance of payments.

5) Support further private commercialization of space.

6) Use private funds rather than taxpayers' funds.

7) Provide a privately funded fifth orbiter which will become an insurance backup for the presently approved four-orbiter fleet.

Yet gaining approval from the space agency may only be half the battle for STC. The big hurdle may come in finding investors to fund the purchase, which will probably amount to more than $1.5 billion to purchase an assembly line orbiter, plus boosters and other eventual necessities.

100-PROOF TOMATOES

It's not likely to become a popular cocktail, but some British researchers have found great success in mixing Scotch and tomatoes. Yet instead of consuming the results, they're converting them into energy.

The Glengarioch distillery, in Aberdeenshire, which for 200 years has produced a single whisky, uses waste heat from two production processes to grow greenhouse tomatoes. And along with hundreds of tons of produce, the liquor maker has cultivated some welcome fuel savings.

The waste heat comes from the condenser cooler water and from the flue gases produced by the butane-fired furnaces. The cooling water is heated by the condensers and is used to warm specially built greenhouses. Another by-product of booze-making is carbon dioxide, which is pumped into the horticultural facility where it aids photosynthesis and increases plant yield. Last year, the process produced more than 156 tons of tomatoes. Aside from making money on the tomatoes, the company is saving money, too, since the process eliminated the need to build a second cooling tower; the greenhouse produces gases that when cooled are used to dry the malt kiln.

PROGRESS MARCHES ON

Have you ever wondered where some of those absurdly useless items advertised on late-night TV come from? Who ever thought up things like a Vege-matic, smokeless ashtray, or fold-up fishing rod? Well, if Iowa State University has its way, we can look forward to more of the same.

The school's Center for Industrial Research and Service recently instituted a program to assist inventors and manufacturers in developing new products. "The goal is to promote the creativity of Iowa people, their talents, and resources," says the coordinator of the program, called Program for Innovation.

Speaking of creativity and innovation, here are some of the 30 "inventions" already submitted. We've also ventured some guesses as to how these brainstorms can be utilized as well as where in hell they might have come from.

1) "An ear tagger for animals" — This was probably invented by a former punk rocker and his French poodle after they both got tired of jabbing safety pins into various parts of their bodies.

2) "Shaving soap additive" — This is probably a ploy by one of the shaving cream manufacturers. It induces rapid growth of facial hair, requiring the user to shave three times a day — which means he'll have to buy three times as much shaving cream.

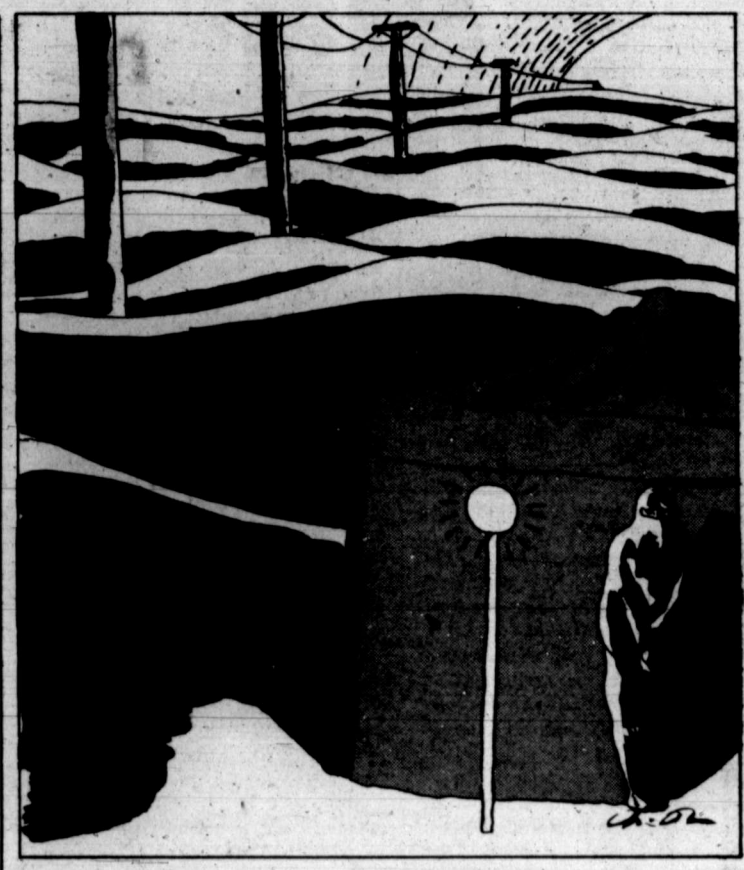
3) "Bathroom tube caddy" — This one is likely to be a vacationing teenager who comes into your bathroom every morning with a leather bag filled with toothpaste and No. 9 dental floss.

4) "Bedside wastebasket" — This is a convenience item for those nights when you just can't make it to the john.

5) "Cattle wash, dry, groomer" — We figure a good name would be "Fabulous," and that it was invented by a consortium of gay ranchers.

6) "Disposable squirrel feeder" — This one is a baffler, since we missed the news that someone had come up with a disposable squirrel.

Readers are invited to submit similarly brilliant ideas.



THE SUN HAS *NOT* FADED ON SOLAR POWER

. . . And whatever happened to solar power? Though James Watt and his mineral mongers are determined to squeeze every last drop of oil out of this tired old Earth, there are those who still believe in our solar future. To prove that we're not just whistling in the solar wind, we've located four solar power plants already in operation:

In Southern California's Mojave Desert, near the town of Barstow, sits the country's first commercial solar plant, which commenced operation early this year. When it goes on line, "Solar One" will begin feeding electricity into Southern California Edison's power grid. The project includes a dazzling array of 1,818 mirror-like heliostats and a 325-foot tower topped by a "central receiver," which is akin to a conventional hot-water boiler. Sunlight reflected from the heliostats heats the boiler, which produces steam to drive a turbine. A computerized control system keeps the heliostats tracking the sun across the sky. Engineers hope to produce 10 million watts — a relatively small output, but enough to supply the annual needs of about 2,500 families. A larger, 100-megawatt solar plant, dubbed Solar 100, is planned to be in operation by 1988.

Halfway around the world, in Saudi Arabia, a solar plant has been providing electricity for three villages near the Saudi capital of Riyadh since last fall.

Contrasting the Solar One system, the Saudi installation produces power directly from the sun into photovoltaic arrays of silicon cells. The plant uses 100 photovoltaic arrays (each consisting of 252 solar cells that magnify the sun 35 times), mounted on cross-beams and support pedestals, with motors to keep them tracking the sun.

A third solar plant, located near the town of Tabernas, Spain, is undergoing final tests. The 500-kilowatt plant, consisting of the heliostat-central receiver set-up like that at California's Solar One, will produce power for the country's appropriately named Costa del Sol (Sun Coast). The plant was built by a 10-nation consortium, the International Energy Agency.

(Continued on page 16)

CHRISTOPHER THOR

F I C T I O N

Stretch's Quirls

BY H.L. GOLD & BILL PRONZINI

The first quirls appeared on a Saturday in late June. A deputy sheriff in the Mojave Desert reported an estimated 100 of them out among the cacti. What they were doing, he said, was eating sand.

There was consternation at first, but it developed that no cause for alarm existed. The quirls were completely nonaggressive. In fact, they were gentle, passive, only moderately inquisitive, and very affectionate. And their intelligence level appeared to approach that of an average house cat.

That was what they reminded most people of — cats. They were about eighteen inches long and seven or eight inches high. They had crested heads and feline faces, with big, round, adoring eyes with inch-long eyelashes; they had no legs or other extremities, except for a taillike appendage which they curled under themselves and used like a spring to bounce-hop along at amazing speed; they had an iridescent orange body covering that was sort of like fur and sort of like feathers, but not like either one, and velvety to the touch.

And they *liked* to be touched — or, more precisely, petted — by humans regardless of race, creed, color, or cleanliness of hand. They seemed to enjoy that more than anything, including the ingestion of sand, dust, and small pebbles. That was all they ate, too. Regular foodstuffs interested them not at all.

No one knew where they had come from. No one knew what they were doing here. Most thought they were aliens, creatures from another world. But no spaceships were sighted and the quirls themselves shed no light on the matter. Their entire vocabulary consisted of a sound that resembled "quirrl," which was how they got their name.

Representatives from the government, and a variety of scientists, got together to explore the phenomenon. Some of the creatures were taken to laboratories in those early days, where they were subjected to tests and examinations. A few were dissected in the interest of scientific knowledge, and proved unlike anything on Earth.

The appearance of the quirls was the primary topic of conversation from Portland, Maine to Portland, Oregon. And it was the reason why, in a medium-sized city in California, a man named Del Henderson met a woman named Moira Andrews.

The occasion of this meeting was a benefit for the Cancer Fund. Henderson was mingling, looking for an interesting and interested member of the opposite sex, when he spied the attractive redhead talking to a local politico. The politico was saying that the quirls — or "little buggers," as he termed them — were pests, alien or otherwise, and ought to be exterminated before they bred like rabbits and overran the world. The woman said that was ridiculous; they were harmless creatures and deserved to be treated with kindness and charity.

Henderson stepped in and offered an eloquent argument in favor of the redhead's view, although he really didn't care one way or the other. She seemed to approve of both him and his attitude toward the quirls; so, when the politico wandered off, he asked her out to dinner the following evening. She said yes.

On their first date, and on those which followed, Henderson learned that Moira, a 28-year-old owner of a maternity boutique, was an old-fashioned maternal spirit; she liked children, books, chocolate-chip ice cream, quiet evenings at home, and long-term romantic involvements. And Moira learned that Henderson, a 30-year-old free-lance photographer, was a modern free spirit; he liked hydroplane racing, gambling casinos, triple vodka martinis, long vacations in Acapulco and Aspen, and short-term romantic involvements. They had nothing whatsoever in common.

So, naturally, they fell in love.

While they were in the process of doing that, the truth about the quirls came out. They were not an alien life form from another planet. They had, in fact, been produced right here on earth by a 6'9" biogenticist named Harold "Stretch" Rabinowitz. From his laboratory in the Movaje, Rabinowitz had created them via recombinant DNA and was now producing other varieties. The function of these first quirls was to turn desert sands into productive agricultural land; the quirls, it seemed, had dual digestive systems capable of breaking down sand into black topsoil and pure water. In addition, the eggs which each laid at the rate of one per day (the quirls were hermaphroditic and therefore self-fertilizing) had shells of pure edible protein.

These facts were made public by Mike Wallace just prior to a *60 Minutes* interview with Rabinowitz. He and his crew had tracked down the biogeneticist in his desert lab and convinced him to appear in public. Rabinowitz had agreed readily enough; he had not anticipated the furor the release of his little animals would cause, and he wanted the world to know the truth about them.

Henderson and Moira, meanwhile, continued to see each other. On their seventh date, he asked her to spend the night with him at his house. She said no.

The *60 Minutes* interview with Stretch Rabinowitz was aired. He was a shy but pleasant man given to wearing Levi's, sweatshirts, and sneakers at all times, even during the interview. He had won an athletic scholarship to Stanford University at the precocious age of 15, where he had excelled at basketball for four years and where he had been given his nickname of Stretch. He did not particularly care for the name, he confided to Mike Wallace, but he was philosophical about its having become attached to him. "I must admit," he said, "it *is* marginally better than being called Harold."

Also while at Stanford, he had amazed his professors in the fields of genetics, eugenics, biology, and biochemistry. After graduating with degrees in these and related fields, he had announced his intention to solve all the world's ills and then had disappeared for the next six years. During those six years, he had created the first quirls, and was in the process of creating others at present. Within a few short years, he claimed, they would bring about not only global prosperity but global harmony as well.

Two varieties of quirls had been genetically perfected so far. The first was the orange-hued quirl (all quirls were color-coded, he explained) which ate desert sand. The second type, peacock-blue, ate broken glass, empty bottles, beer cans, candy wrappers, and produced silicon and recycled aluminum. As with all quirls, these types were hermaphroditic and self-fertilizing, reproduced by laying eggs (there was one varietal exception) and only after having been petted for not less than twenty minutes per day — the petting stimulated them to their utmost potential — and also bred true. All were toilet-trained to leave their droppings in appropriate receptacles.

The other quirls in various stages of development, Stretch Rabinowitz said, were the pale-yellow smog quirl, larger than the domestic varieties, which breathed carbon monoxide/carbon dioxide and exhaled pure oxygen; the very large, bright green oil quirl which ate oil shale and oil sand and produced light, sweet crude oil superior to Indonesian crude; the very, very large, dark-purple industrial quirl which ate toxic waste, automobile tires, automobile wrecks and other junk and produced raw rubber and metals; and the very, very *very* large, dark-red desalinizing quirls which perpetuated themselves by live birth (they resembled gigantic whales, at least in size), and which drank sea water and produced sweet water, as well as extracted minerals, without affecting the natural food chain.

Rabinowitz, in conclusion, emphasized the fact that his quirls would not affect *any* food chain of any form of life. "No quirl will eat anything organic," he said. "Man has dominion over all things on this planet; we must see to it that the natural order of life is not disrupted."

After the *60 Minutes* interview, there was little question in anyone's mind that Rabinowitz was an eccentric genius. Some, however, wondered if the fine line between genius and insanity had not been crossed in this case. Even those more generous in their opinion of the biogeneticist's sanity refused to believe in his "quirl solution." Henderson was one of the skeptics, and that was the cause of his first major argument with Moira. She was an eternal idealist, which made her a believer in Rabinowitz and the quirls. So they argued, and the argument turned heated, and they eventually vowed never to see each other again.

Henderson called her a week later and asked her out to dinner. She said yes. That night he asked her to go with him to Aspen for the weekend. She said no.

Weeks passed. The desert, domestic, and smog quirls, to the astonishment of the skeptics, were accomplishing just what Stretch Rabinowitz had promised they would. The booming computer industry was paying $2.50 a pound for the silicon droppings of the domestic quirls. Orders were coming in to Rabinowitz from industrial companies for this or that variety, as well as from such exclusive firms as Neiman-Marcus and Tiffany's, who wanted a special quirl which would eat coal and produce diamonds. (Such a special quirl was eventually created; it produced flawless one-carat diamonds at the rate of one per month, and was put on the quirl market at $1,000,095.95 each. This particular quirl was also sterile, as a safeguard against problems in the international diamond market.) So many orders were coming in, in fact, that Rabinowitz was forced to incorporate under the name Stretch Rabinowitz, Inc. By this time everyone referred to him as Stretch, and to his animals as Stretch's quirls.

Henderson broke up with Moira in frustration, called her again, broke up with her, called her. She kept saying yes, but she also kept saying no.

Months passed. All the major types of quirls were now perfected and doing yeoman's duty not only in the United States but throughout the world. People were being employed as quirl petters, with more and more needed as the animals multiplied, and the unemployment problem, especially among teenagers and minorities, was soon solved. The desert quirls were transforming all of the great Western deserts, crops were being planted, and with the protein shells of the quirl eggs, the threat of famine was fast disappearing. The automotive industry was starting to flourish again as well. Ford, GMC, and Chrysler were abandoning the small car market to imports and beginning to manufacture gigantic gas-guzzlers again. In a statement to the press, Henry Ford II said, "Small cars mean small bucks. Big cars mean big bucks."

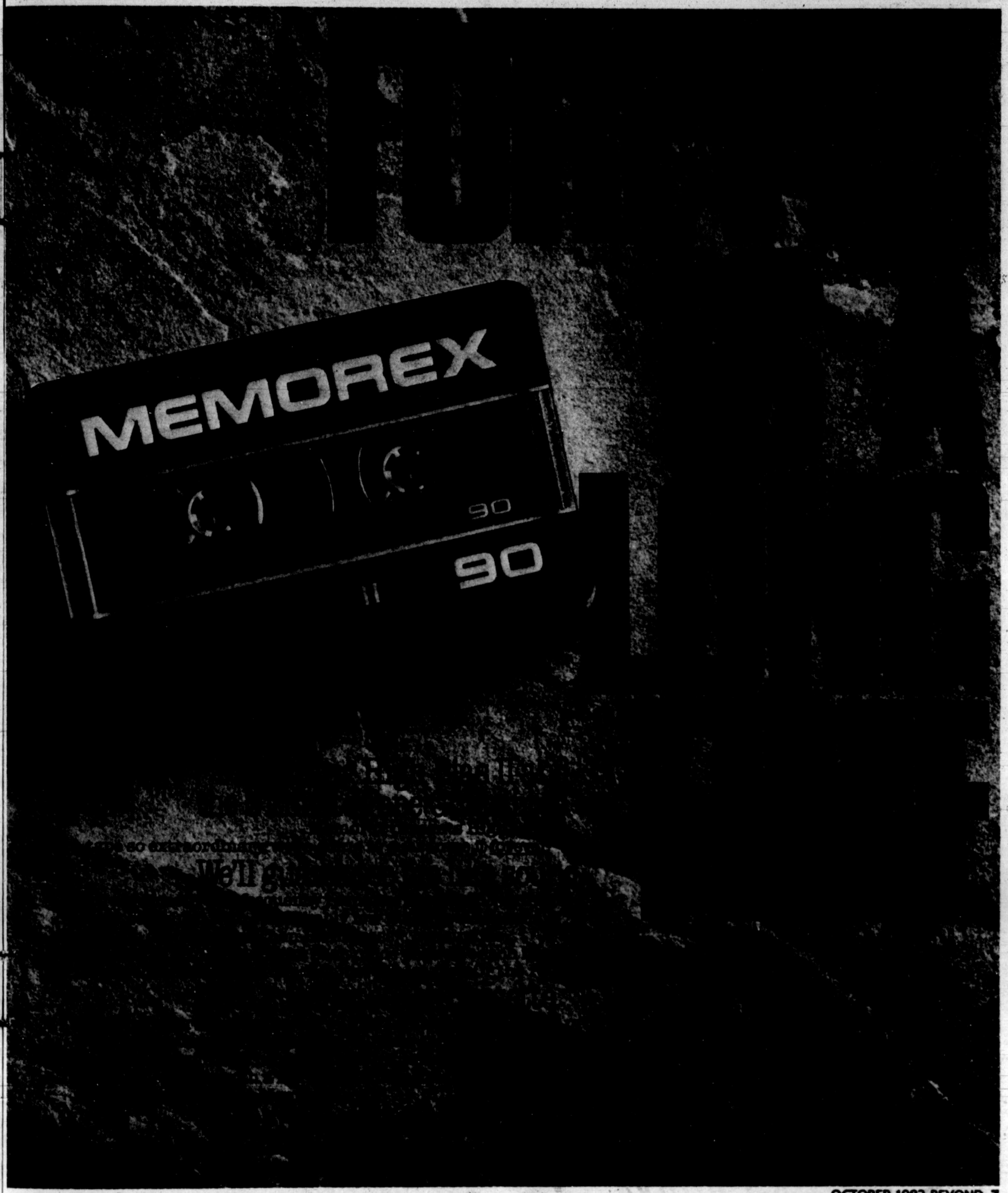
Stretch Rabinowitz's photograph graced the covers of *Time*, *Newsweek*, *Business Week*, *Fortune*, and dozens of other publications, including *Pravda*. With the enormous amount of money he was making, Stretch was able to set up a major research facility which, because of his shy 6'9," only employed scientists who were 6'6" or taller. To supply the necessary space for this facility's laboratories and hatcheries, the grateful state of California made Stretch Rabinowitz, Inc. a present of an entire section of the Mojave.

Henderson and Moira celebrated their first anniversary in typical fashion. ion. He asked her to please, *please* stay the night with him and she said no.

The desalinizing quirls, all of which were controlled, of course, by Stretch Rabinowitz, Inc., were each producing thousands of barrels of fresh water a day in the Persian Gulf and the Mediterranean. Every barrel of water was traded to OPEC for a barrel of crude oil, which eased petroleum problems in the West until the oil quirls could solve them permanently. Desert quirls were sold or traded to transform the Sahara and Middle East deserts into agricultural valhallas. The DeBeer's diamond syndicate purchased 5,000 lime-green diamond-producing quirls (for 50% of DeBeer-Stretch Diamond stock) and fed them blue clay from South Africa, with the result that they were able to obtain flawless diamonds as large as the fabulous Kohinoor. Even the Russians were forced to publicly admit the vast im-

(continued on page 16)

PAUL OLLSWANG


MEMOREX
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NIKOLA TESLA:

The Greatest Inventor of All Time?

BY BOB SLANE

United States Patent #514,170 describes an incandescent light bulb, one which produces light in exactly the manner employed by the sun. This simple mechanism, inexpensive to produce, will generate 20 percent more light than a common household bulb using the same amount of voltage.

Where can you buy this lovely little energy saver? As hard as it is to believe, here in the age of the energy crunch, you can't buy it anywhere. Even more incredible is the date of the patent: February 6, 1894!

The bulb's creator, Nikola Tesla, is likely the greatest inventor of all time. His trail-blazing work from 1880-1930 changed the world dramatically. It was Tesla, not Edison, who discovered every principle and invented every device for the alternating current we use today. Tesla, not Marconi, invented the radio and every one of its components. He pioneered work in fluorescent lighting, bladeless turbines, the point electron microscope, the cyclotron, guided missiles, robots, computers and broadcasting. (In later years scientists shamelessly accepted credit for these devices that was due only to Nikola Tesla). He created lightning and earthquakes and employed the earth in his experiments as if it were nothing more than another piece of laboratory equipment. It is impossible to understand why he is not duly honored as one of the greatest scientists of all times.

Tesla possessed a special gift of visualization that helped him to stampede through the new territories he was discovering almost daily. Even as a child, if someone spoke, for example, of an apple, he would actually see that apple. He could only tell it was not real by passing his hand through it. At that time, he felt the gift was a curse. Later, when he began to take advantage of his talent by astounding his math teachers, he began to realize he could utilize his vision as a scientist and inventor.

Tesla decided to study the fresh and exciting new field of electronics. It was while in college in Belgrade, studying electronic engineering, that his gift came to fruition. During a lecture on the direct current (DC) motor, Tesla stood to tell his professor that an alternating current (AC) motor would be more efficient for several reasons. The prof, somewhat irked, told Tesla testily, "You are correct. However, it is well known that it is quite impossible to make an alternating current motor."

At that moment, Tesla had one of his moments of vision. Somewhere in his mind, he solved the enigma that had eluded the best scientific minds of the time. He saw clearly the AC motor running smoothly before his eyes. He blurted out, "No sir! It is possible!"

The next day the wise professor thoroughly embarrassed Tesla by proving beyond a shadow of a doubt that AC motors would never be made. Fired by this challenge, Tesla worked relentlessly fifteen hours a day (as was his habit throughout his career) to prove what he already knew was true. A few years later, he had made the first AC motor.

Tesla felt that his momentous discovery would bring him instant wealth and fame. Such was not the case. Frustrated in his attempts to find European support for his device, he came to America with a letter of introduction to Thomas Edison, already recognized as the father of practical electrical energy. One would think that this meeting between monumental minds would be a great occasion. It wasn't even close.

Edison had invested heavily in DC current. AC current would instantly outmode his developments, as it was more efficient and could be transmitted at far greater distances and in larger quantities than DC. The last thing he wanted to hear was that someone had made AC power practicable. Edison dismissed the talk of AC inventions summarily. He gave Tesla a lowly job as a technician. Tesla soon quit after being cheated out of $50,000 by Edison.

Three years later, Tesla sold his fundamental patents for every device needed for alternating current production and transmission to the Westinghouse Electric Company. The price, one million dollars, turned out to be one of the great bargains of all time. By 1896 the first Niagara Falls power plant was built with equipment designed by Tesla. Soon AC current had lit America and set it in motion. So advanced was Tesla's design that it remains the standard for electrical power production to this date. His work was so thorough and meticulous that it has never been improved upon.

From this point on, Tesla's work became so advanced that, if he were born today, he still would have been ahead of his time. His discoveries were always of the first magnitude. No mere inventor, he unearthed the principles of electricity, found the potentials of nature, and incorporated them into his inventions. Though he had no fewer than 200 inventions, each one of which could have made him a multi-millionaire, he refused to be bothered with the necessary transactions to convert his ideas to dollars. He delighted in impractical and expensive experiments that represented science for the sake of science to the highest degree. His work came to rely on the generosity of philanthropists rather than the investments of industrialists.

Tesla, tall, handsome and personable, perfect in manners and dress, became one of New York's most flamboyant and well-liked figures. The elite of society came to his laboratory at an instant's notice to see the wonders he created there. Lighting was supplied by glowing tubes that were connected to no wires. One merely placed the tubes wherever light was needed. With the snap of his fingers, Tesla would create instantaneously a ball of leaping red flame and hold it calmly in his hands. He let the flame run over his clothing and hair, then dropped it into a dumbfounded guest's lap.

Mark Twain was a close friend of Tesla's who used to delight in a vibrating platform in the laboratory. The platform, set in vibration by an oscillating device small enough to fit into a pocket, imparted a feeling of great vigor to anyone standing on it. One day Tesla had the idea to bolt the oscillating device onto one of the structural beams of the building housing his lab. As he watched the gadget build up speed, he did not know that he was creating the biggest earthquake in the history of New York. The tiny motor broke windows and pipes, knocked down walls and moved heavy motors off their mountings. The police, long used to the strange sounds, lights and vibrations emanating from Tesla Laboratories, raced to its doors on quivering streets. They burst into the lab just in time to see Tesla smash the oscillator with a sledge hammer. It seems his own building had started to shake last.

Periodically, Tesla would take time from his ever-intensive research to present lectures and public demonstrations. His lectures, given before the leading scientific institutions, were as carefully crafted and magnificent as his inventions. He never repeated a lecture and for each occasion he demonstrated a new bevy of inventions, the likes of which the world has never seen before or since. The incredibly advanced state of his work, the breathtaking discoveries that he casually revealed, left even the best scientists dumbfounded.

Tesla showed a flair for drama in his public demonstrations. Once, to disprove Edison's claim that AC current was too dangerous, he passed one million volts of AC current through his body and melted an iron bar he held in one hand. At a Madison Square Garden demonstration, he revealed the first robot: a model boat that Tesla put through a whole series of maneuvers using a remote control device. At the time, the wireless transmission of energy was thought to be impossible.

Tesla's greatest invention may have been his device for wirelessly transmitting energy around the world. Free from the energy-robbing friction of carrier wires, the system made use of the earth's own electrical potential to transmit electrical power safely and vastly more efficiently than even his own alternating current system. With this device, Tesla knew that he could supply the world with electricity using only three transmitting stations placed around the globe. To obtain electricity, one would only have to drive an iron rod into the ground and attach a simple device to it to convert the energy into a usable current. The plan, though proven workable, was never employed. Tesla could not supply potential investors with an answer to the question, "How could compensation be collected for the services rendered?"

Tesla loved these projects of global scale. He stated, and it is very likely true, that he had perfected a plan to light the night skies of the entire world with a single device. Though the machine was never made, such is the respect for Tesla in scientific circles that it is generally agreed that he could easily have performed this miracle. Any task presented by his marvelous vision could be done.

Another of Tesla's many great accomplishments was the generation of 100,000,000 volts of electricity. No scientist since that time has produced one tenth that amount. Incidently, one of the devices employed in this generation was to become standard equipment on the sets of horror movies. It was the Tesla coil that made the giant bolts of lightning that arced through Dr. Frankenstein's laboratory.

For a number of reasons, most of Tesla's great discoveries were lost to the world. Blessed with total recall, he never bothered to write things down. Not only was it unnecessary for him, but it provided maximum security against invention-stealing. Tesla fully expected to live 125 years. He had decided to devote his first 100 years to research and then write his autobiography and chronicle his most secret discoveries. Unfortunately, Tesla was stricken with senility before the age of 80. To the great loss of mankind, he never finished his writing project.

At his death, in 1943, what papers he did have were confiscated by the FBI. These papers remain sealed from the general public to this date. Their contents are totally unknown, nor has it been revealed whether the U.S. Government has made use of them.

Tesla was, by choice, celibate his entire life. He thought of himself as a superman whose energies were not to be wasted on useless emotion. He lived totally alone, confiding in no one. He left no heir to those unique genes that made him a giant among men.

Even though only a fraction of his total knowledge survives, he was still able to make incredible contributions to the world. And to this day, scientists are rediscovering the principles that Tesla knew a century ago. Tesla showed what was possible, so it only remains for science to find out how he did it.

Recommended reading: *Prodigal Genius: The Life of Nikola Tesla* (O'Neill, published by Neville Spearman, London); and *Tesla: Man Out of Time* (Cheney, published by Prentice Hall).

Bob Slane is the former publisher and editor of Primo Times *in Bloomington, Indiana; he is now a free lance writer in Tucson, Arizona.*

PATENT PAYOFFS

Ingenious Industry Incentives Inspire Inventors

BY PAUL ROSTA

In the old days, it all seemed so simple: a brilliant, half-crazed inventor would spend months or years in the laboratory, perfecting the automobile, the telephone,or the airplane. When that wondrous gadget finally saw the light, presto! A new industry, spawning a new way of life and gravy for all—including the inventor, if he was lucky enough to be named Ford, Bell, or Wright. Other inventors were perhaps not so lucky, and saw the lion's share of the goodies go to the canny businessmen who were able to market the new device.

Nowadays, of course, it's another story. Instead of lone inventors (who were not always so lone) laboring independently of outside interference, there are whole armies of researchers under the wings of major corporations. In such fields as energy, computers, aerospace and electronics, companies are playing for high stakes, and an inventor's success can mean profits for the corporation and prestige for the inventor. How much appreciation a company is willing to show an inventor in return is another matter, and depends on the corporation. Some companies invite their outstanding research scientists to share in the profits, and sometimes the lion's share of the goodies *still* goes to the canny businessman who is able to market the new device.

As a rule, the company retains all rights to an employee's inventions. Most major corporations require their scientists and engineers to sign an agreement to disclose any thing developed during work hours on official company projects. "We're not interested in the ski racks people make on their own time," said an aerospace industry spokesman. At some industrial giants, you won't get much special incentive for your inventions; they're all in a day's work. As one Xerox official put it, "That's what they're paid to do." Of course, there are so many inventions at some companies that if they stopped to hand out a prize every time a patent was granted, they probably wouldn't have time to do anything else. Inventions get to be pretty routine stuff at Xerox, IBM or Kodak.

This doesn't necessarily mean that invention, like virtue, must be its own reward. Inventions do not go unnoticed, especially if the company applies for a patent on the inventor's behalf. At Lockheed, an employee gets $100 for a patent application. At McDonnell Douglas and Rockwell International, the award is $200, and at Honeywell they give out $200 plus a plaque. And Boeing Aerospace awards inventors the tidy sum of $500 if the company applies for a patent.

Now, if the patent is granted, there may be another nugget for the inventor. At companies where they recognize patents, it means another cash award, and a bigger one, too, like $500 to $750. There may be a catch to all this; if the patent is for a group project, each member of the research team that developed the invention is not entitled to the prize. "If there are 200 inventors, they divide it 200 ways," said a McDonnell Douglas spokesman. So the chances of inventors retiring to South America on patents alone are pretty slim.

Some companies choose to avoid singling out patent holders with a large monetary award. At Northrop, the inventor is simply awarded $25 whether the invention gets a patent or not. The folks at Ford do not even deign to cross the palms of their brilliant inventors with so crass a substance as gold. Anybody at the auto manufacturer to whom the U.S. government awards a patent earns a cylindrical plastic and wood paperweight 3½ inches in diameter. The paperweight is inscribed with the name of the employee and the number of the patent. And lest its absent-minded scientists forget the source of all this beneficence, the awards are embedded with a bronze-colored medallion bearing a portrait of Ford's founder standing before an early horseless carriage.

If an invention starts raking in money the company will occasionally allow the inventor to share in the profits. While Apple Computer has no specific program for rewarding patents, it has a comprehensive program of profit sharing, bonuses, and stocks. At McDonnell Douglas, the inventor of a notably profitable device earns 30 per cent of the first $10,000 the device earns for the company, 20 per cent of the next $10,000, and 10 per cent of all the profits after that. An especially productive inventor may earn between $3000 and $10,000 per year from royalties, a McDonnell Douglas spokesman said. In one outstanding (and possibly unique) case, an inventor cleared $2 million in royalties, because his work made possible an entirely new kind of high altitude jet aircraft. If Boeing decides to sell off a patent to someone else who can make more use of it, the inventor is not left entirely out in the cold. He receives 20 per cent of all the profits resulting from the sale of the rights to the other company.

The whole system of rewards and royalties for inventions could soon change if sponsors of a bill now in hearings before the House Judiciary Committee have their way. Should H.R. 6635 become law, companies will no longer escape with flat awards or no awards for inventions. Instead, each inventor would have the right to negotiate with the company over the fair market value of the device, and the inventor's rightful share of the windfall. A special arbitration board at the Patent Office will mediate any disputes be

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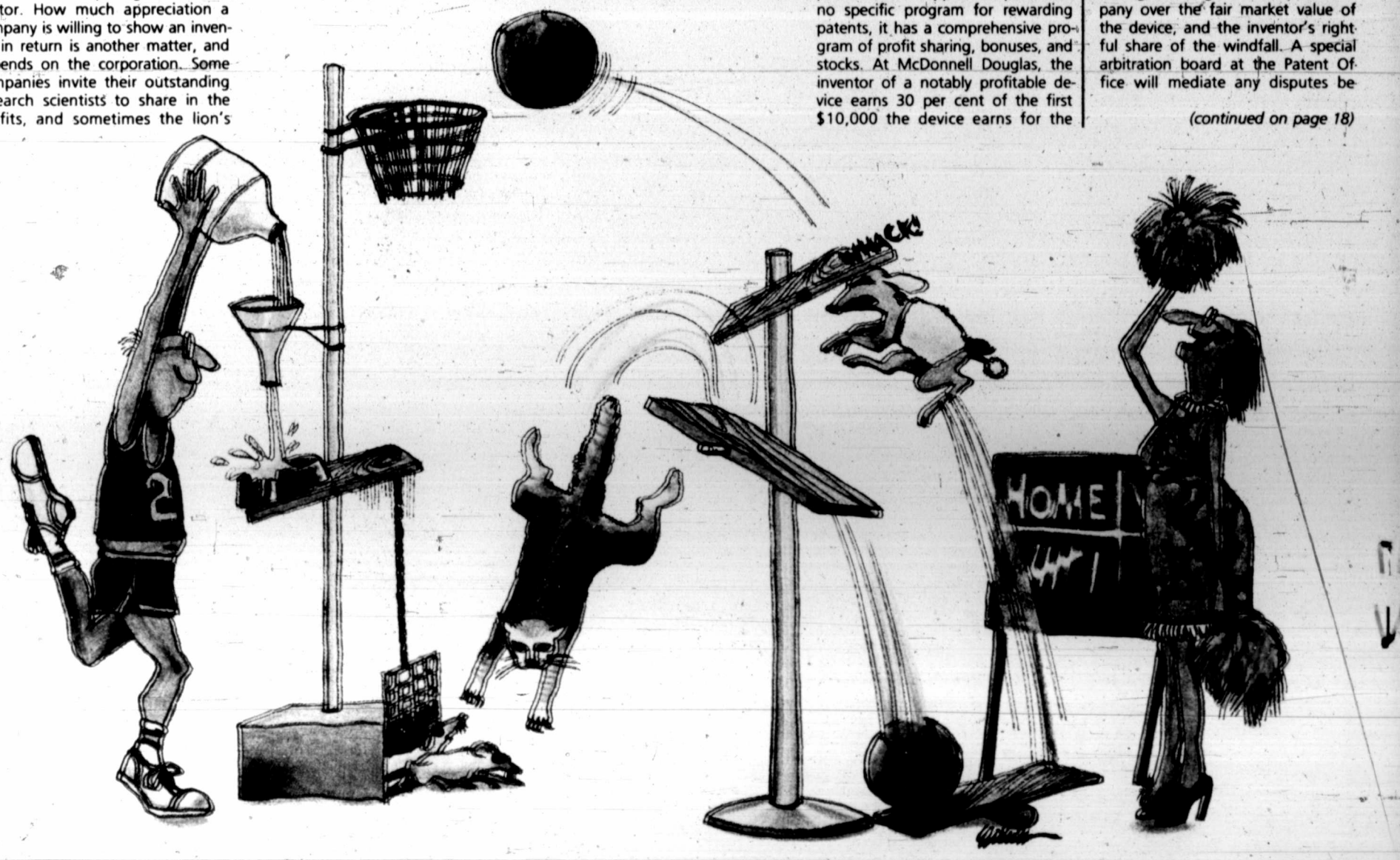

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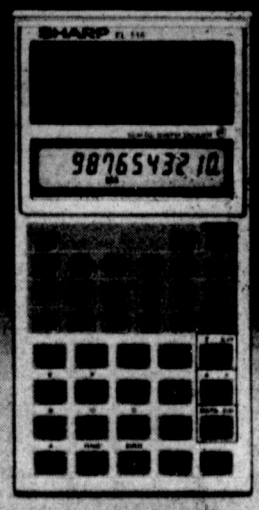

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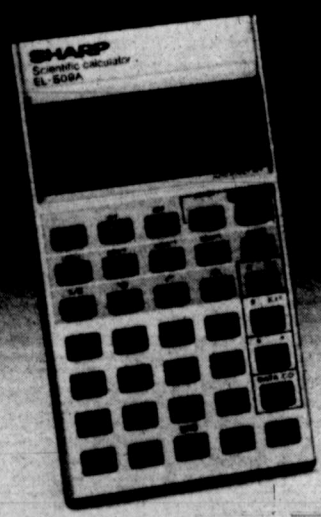

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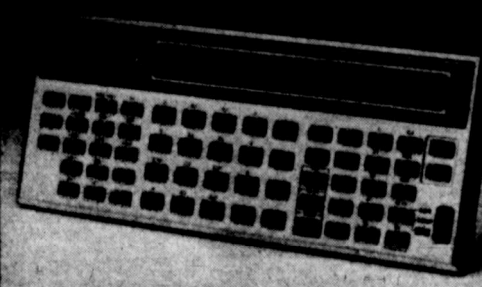

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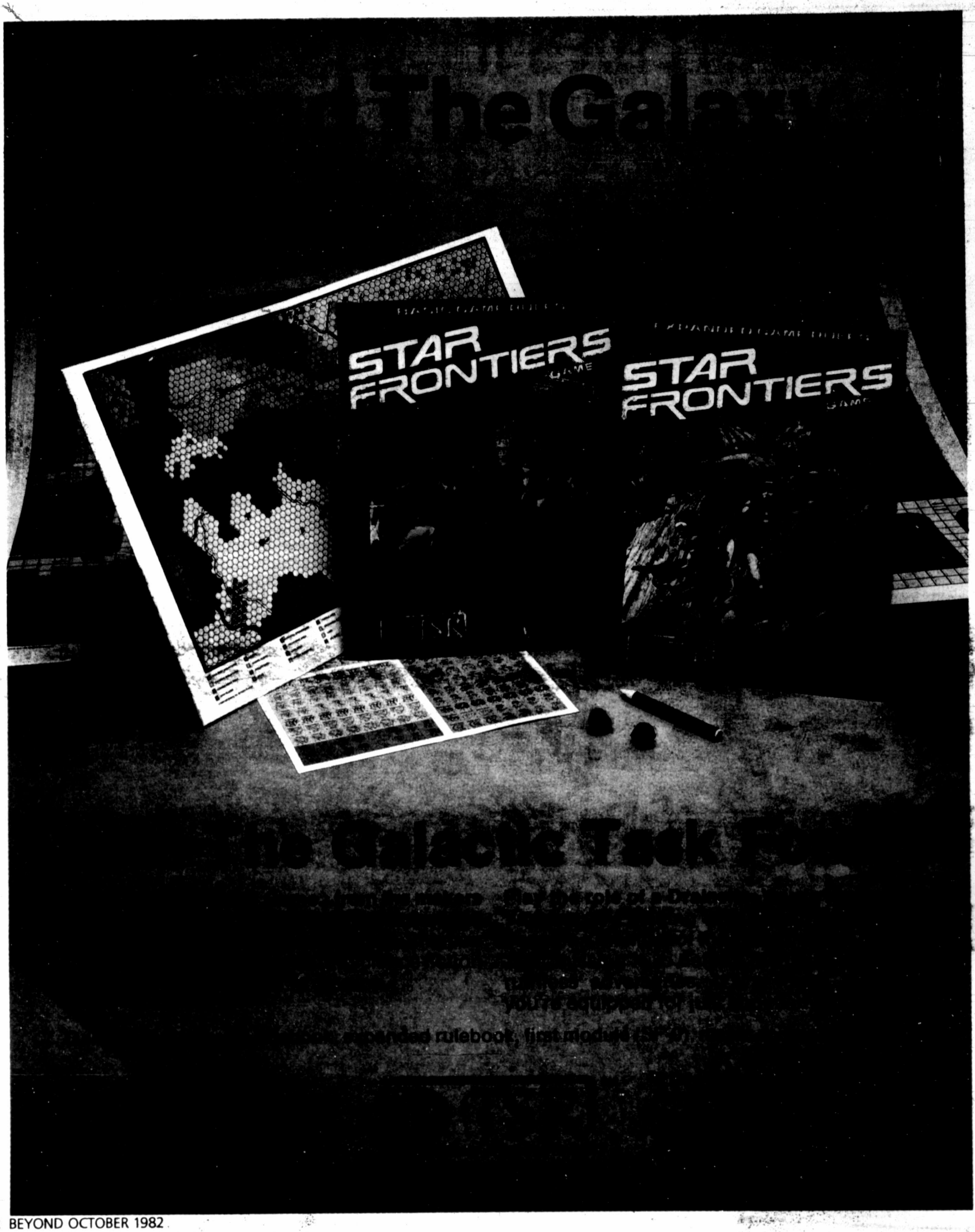
STAR FRONTIERS
STAR FRONTIERS

Inventions That Bombed...

Wherein writer Barnes takes some liberties with the word "invention," and digresses into assorted diatribes on drugs and videodisks, among others.

BY STEVEN BARNES

We live on the verge of an era of technological expansion which will make the past century seem like the Dark Ages. The Space Shuttle. The home video explosion. Recombinant DNA. The hand-held computer with built-in Modems to talk with Big Brothers around the world. The mind boggles.

But for every Jenson Interceptor there are at least two Edsels. For every fit, trim, exhausted body emerging from a Nautilus torture shop there are a dozen flabby deskworkers still trying to get visible results from Isometrics.

To put it bluntly, the failures outweigh the successes by a healthy margin. Because most technological dinosaurs have the good grace to sink quietly into the Bog of Time, many people have the impression that the Western World has produced an uninterrupted flow of marvels, unblemished by error, miscalculation, or brute stupidity.

As an educational publication, it is *Beyond*'s solemn duty to dispel these misconceptions. Soberly. Sanely. Without a hint of a twinkle in the eyes, or the slightest trace of a guffaw in the back row.

The failure of a product to make it in the marketplace can be attributed to a number of factors:

1) The damned thing just doesn't work. (For instance, the billion-dollar Atomic airplane idea which was finally dumped in the Fifties.)

2) It works, but not as well as it was hyped, thereby creating a customer backlash. (The aforementioned Isometrics, for instance)

3) It has unexpected, disturbing side effects. (Thalidomide.)

4) It works just fine, but cannot find a market for one or many reasons. (The Picturephone. Surely one day its time will come, but test marketing thus far has proven the average subscriber too camera-shy to enjoy the idea.)

Let's take a look at some of the inventions through the ages that have brought headaches, grief and sometimes financial ruin to their developers and users.

Does anyone out there remember the Edgar Allen Poe story, "The Premature Burial?" Well, Edgar was playing on a popular fear of his time as surely as Stephen King now plays on modern paranoias. In the middle and late 1800's, there was a flurry of panic about catatonia and other paralytic states that might cause one to be interred before one's time. To respond to this need, inventers took out more than a dozen patents for Premature Burial alarms, which were, for a short while, quite the rage.

Another invention killed them, however. It too was advertized as a "sure cure for premature burial." It was called Embalming.

In the early 1900s, the Stanley Steamer caused quite a stir. Powered by kerosene and water vapor, it broke the land speed record, clocking in at 127.66 mph in 1906. Despite their efficiency and speed, steam powered cars had some problems which needed to be ironed out — and which resulted in their being superceded by the gasoline, internal-combustion engine. R.A. Gibbs, President of the Steam Auto Club of America, Inc., says, "Steam engine cars burned vaporized fuel, and had a pilot light which had to be lit from an exterior heating device like a blowtorch or a wick. They then heated kerosene or gasoline for the main burner. Part of the problem was the tiny orifice where the vapor was jetted into the main combustion chamber. This could be clogged with a chunk of carbon."

There were other problems, too — it would take from twenty to thirty minutes for the water to heat sufficiently to start moving. In cold weather, you had to protect the vehicle, or the water might actually freeze.

In addition, many people were afraid of the pressures involved with the boiler — around 600 lbs psi. This was in spite of the fact that no one was ever known to have been hurt by the explosion of a steam automobile's boiler. "Today," Gibbs concluded, "we have most of these problems handled. On some models it takes only 60 seconds to heat up the water to the point that you can begin to move." Gibbs' organization hopes to reacquaint the public with the unique potential of these forgotten vehicles.

The Roaring Twenties saw the emergence of another, somewhat jollier invention: *Lydia Pinkham's Vegetable Compound for Feminine Fatigue.* This was back before the Pure Food and Drug Act, when Coca-Cola actually *was* "The Real Thing." Ms. Pinkham's concoction of 60 proof alcohol and opium was said to cure colic, anemia, hyperactivity, and nervous symptoms in general. Their motto was "A baby in every bottle," no doubt a reference to the Compound's claim to cure sexual dysfunction.

The Spruce Goose (above) and the Stanley Steamer (below): two fabled flops in the colorful history of inventions. (A dramatization.)

It was a great favorite of the Women's Christian Temperance Union, and it is a safe bet that after a hard day of campaigning against the horrors of alcohol, the ladies would go home and knock back a few belts of their favorite medicine. Few of them realized that they were addicted. It is well known, however, that it was common for them to defer their mortgage payments until they could get their cases of Pinkham's tonic. When the Pure Food and Drug Act passed, the opium was removed and the alcoholic content disclosed. Hundreds of WCTU ladies went through opium withdrawal and D.T's.

There's undoubtedly a moral here somewhere . . .

In the 1940's Hitler was marching in Europe and Africa. Metal was scarce, so Howard Hughes convinced the defense department that the ideal solution to both problems was to build a plane made out of wood.

Made largely of plywood, the Spruce Goose was born. The plywood airplane was the largest plane ever built, and would have carried 750 troops. It only flew once: Hughes had orders to run it across the waters of Long Beach without a take off. Afterward he told the Congressional witnesses that he couldn't hold it down. It was never mass produced, and never used again, but it still exists. The City of Long Beach hopes to turn it into a tourist attraction like the Queen Mary.

"How about a couple of Miltown?" was a standard joke in 1950's era E.C. comic books, and a more tasteless jest never came out of *Mad* magazine.

Miltown was one of a family of drugs called Meprobamates (such as Soma). It affects the hypothalamus, causing hormonal changes. Women's voices deepened, men lost their beards. Much more importantly, the Meprobamates are the most physically addictive class of drugs. Heroin, in comparison, is 8th on the list.

A typical dosage was 250 to 300 mg, three times a day. There was one big problem: tolerance develops within 72 hours, and the dosage had to increase for this "mild sedative" to be effective. When the dosage hit 600-900 mg within a 24-hour period, one developed significant loss of logical faculties. Physical addiction began at 2400 mg/day, a dosage which was reached within a few weeks. At 3600 mg/day withdrawal included hallucination, coma, and life-threatening seizure.

How life-threatening? One woman who went through withdrawal *in the hospital under full medical supervision and restraint* lived, but her seizures broke all of the bones in her arms and legs, dislocated her back and cracked her pelvis.

While on the subject of medicine, we should mention the non-prescription diet aid. A look though the pages of any mass-market tabloid will find a wealth of these "Scientific Miracles," promising weight loss without work and/or without cutting back on food intake — everything from expanding cellulose tablets (which are marginally useful, helping you to feel "full" before you are) and the kind of vibrating pads which are a physiologist's nightmare — the ones which claim to "break up cellulite deposits," or "wash away fatty tissue."

There are even more interesting ones, like the legendary diet tablets sold on a popular teenybopper TV show of the Fifties, which supposedly contained dormant tapeworms. The story may be apochryphal, but the message is clear: there will never be an end to the "heat tablets," "starch blockers," electroshock muscle stimulators, whirlpool massages, and all of the other props which allow people the comfortable illusion that they are "doing something" about their weight problems.

As we move into the Sixties, we would be remiss not to mention the Bell Rocket Belt, once thought to be the ultimate solution to Infantry transport in the military.

Developed by Bell Aerosystems in 1961, it had a tiny problem — it could only remain airborne for 21 seconds. As a result, its primary use has been as a crowd-pleaser at country fairs, and as a special effect on *Lost in Space* and the James Bond movie *Thunderball.*

(continued on page 18)

Oops, Wrong Number

BY JON H. CLINCH

"I am a scientist," he told me. "To be precise, I used to be a scientist, before my — " he wiggled his eyebrows " — my accident." The intruder, swaddled in an amorphous, smudged gray cloak, hiked himself up onto the stool beside mine and eyed my egg salad sandwich. "But before I show you the results of *that*, my friend, you must hear my tale."

This hissing stranger wasn't one of the regular lunchtime crowd at Angelo's, but the place was pretty empty; I ordered us two cups of coffee and listened.

"I worked for Bell Telephone, see, in Research and Development. You've seen my work —I did the Mickey Mouse desk phone and the busy signal. Both popular items, but small potatoes, believe me.

"Sitting around the lab one day, I had this idea that I knew would absolutely revolutionize the telephone business and plunge society ahead by a million miles. I also saw a hefty bonus in it, incidentally. This was the idea: Telephone Teleportation. I figured that when the railroads screwed up, the airlines came in and took over, correct? Of course. So, since the airlines had blown it, the time seemed right for Ma Bell to jump in and start sending people from one spot to another over the phone lines." He squinted like a demon. "No kidding."

He grabbed my arm. "Now listen carefully. This isn't an easy concept for a layman to grasp. I should know, as you'll find out.

"Now, every atom in your body, in this formica counter, in this cup of coffee," he jiggled his and spilled it, "is vibrating all the time. Just like a little tuning fork." He banged his spoon against the counter and held it to his ear. "My God, it's music. Anyway, I rigged up this little circuit that converted the microphone of an ordinary pay phone into a receiver for those vibrations. I raised its frequency response, see, by a factor of a billion."

He stuck out his arms, trembling like an evangelist. "It could hear you vibrating around while you stood there, and then it could convert those vibrations into a stream of electrons." He slapped the counter with both hands. "Whoosh! You'd be shooting like sparks, from here to Cleveland." We blinked at each other.

"What a money maker this will be, I thought. Instead of five bucks for a three-minute long-distance call, they'd pull in a couple hundred for a ten-second teleport. Hop in, dial the number of a booth in Cleveland, give your credit card number, and — Bango! — you're there. No baggage weight limits, no nothing. Take all the stuff you can cram into the booth.

"So I fitted the circuits into booths at either end of the block our building was in, and I cobbled up a little override switch that put the signal into the system. Easy as pie. I used to go down there at night and zoom back and forth from one booth to the other. Some kids spotted me and asked (I was wearing my glasses) if I was Clark Kent. I've got to admit, it went to my head for a little while." His eyes rolled.

"Anyway, I was finally ready for the big presentation. I took Snyderman, my manager, down to the street and told him he was about to see something that he wouldn't believe." His eyebrows jumped. I could have guessed that Snyderman would have had his doubts. "He stood outside the booth while I put in my dime and pushed the buttons.

"Do you know what happened? Do you know what I did?" He stared at me until I said no. "What happened was that I was so excited I dialed the wrong number. *I called home.*" He poked my chest. "Can you believe it? A brilliant idea, all that work, Snyderman standing there chewing his lip like he does, and I call home.

"You can thank God my wife wasn't home to answer the phone, or I'd have spilled out all over her. I'd have stuck to the walls like a balloon at a party, I tell you, and that would have been the end of it." He shivered.

"But Snyderman brought me back. He got in the booth and jiggled the disconnect lever until my dime came back, and then he called the operator. In a flash I materialized right there in the booth with him, more or less." He leered. "I say 'more or less,' you understand." He leaned close; he smelled awful. I began to suspect that his wife was strictly imaginary.

"I'd been floating around in the system for a couple of minutes, and my signal had begun to deteriorate. When I emerged, I was just a little bit mixed up — if you get my drift."

He threw open his cloak, spun around on the stool, and thrust his legs out. He wore one tennis shoe, one penny loafer. "See? Two left feet! How can I take my wife dancing with two left feet? How can I buy shoes?" He snatched my arm and held on. "And that's not all. I'm missing my navel." I refused to look, and wrestled my arm free.

"Well, Snyderman was aghast. He fired me on the spot and threw the circuits down a storm sewer. I thought I was ruined."

He sat quietly for a minute, rubbing his jaw, trying to remember the end of the story. "But I'm not! No sir, I'm not! I have a little information that the medical community will be very interested to hear. (You're not a doctor, are you?) Anyway, listen to this." He bent over on my shoulder, his whisper conspiratorial. "Somewhere out there in the phone lines, floating around waiting to spill all over somebody's ear, is *my appendix*. What a leap for mankind!"

He winked slowly and deliriously, slid off the stool, gathered his cloak about himself, and was gone. I paid for the sandwich and the coffee, and then I left too.

Jon H. Clinch is an advertising and public relations writer in Quakertown, PA. His humorous essays have appeared in Advertising Age, but his favorite recent project is the completion, with his wife Wendy, of a daughter, Emily.

DAN EICHOLTZ

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Quirls

(continued from page 6)

portance of the quirls and to begin dickering with Stretch Rabinowitz, Inc. for Soviet import rights.

The world economy continued to boom. Production doubled, and doubled again; in the United States, it was operating at 103% of capacity. As Stretch pointed out in a media interview, "The basic problem of the world is not overpopulation but underconsumption. We've solved that problem here in the U.S. It won't be long before we solve it everywhere. I am not a consumer advocate. I am a *customer* advocate. People without money are minimal producers and negligible consumers. People with money are customers. Therefore, this be our motto, this be our creed: Every Man, Woman, and Child a Paying Customer! The business of the world is business — and business needs customers." He then went on to propose a worldwide minimum wage of $11.11, or its equivalent, per hour.

Every household on Earth, it was projected, would own at least one domestic quirl within six months. Meanwhile, there was a lively business in selling and trading the smaller domestics; they made excellent pets and got along well with cats and dogs. They were also very good with children, placidly allowing themselves to be picked up and cuddled and/or mauled.

In desperation, Henderson asked Moira to fly to Rome with him, all expenses paid, for two weeks while he was on a photography assignment involving, as it happened, quirls. She said no.

As the end of another fiscal year approached, Stretch Rabinowitz, Inc. grossed $7.1 billion and netted $6.999 billion — the richest corporation in the world, so rich that Stretch turned all his profits over to the Stretch Rabinwotz Foundation to fund research projects looking for

cures for cancer and other diseases; he refused to take more than $60 per week for his own personal expenses. He also wrote a book, without the help of a professional writer, about his life and his quirl research. It became an instant bestseller and sold more copies worldwide than any other book except the Bible. It did not receive a single negative review, a fact unheard of in the entire history of literary criticism.

When Henderson got back from Rome, he bought two peacock-blue domestic quirls. Then he called Moira and told her about his new pets. She came right over to see them. It was a very tender scene — Henderson and Moira and the two quirls that were, he said modestly, orphans he had saved from certain death by drowning in the stream behind his house. (This was not so farfetched as it might seem. Even though most quirls were owned or controlled, a few would occasionally develop a kind of quirlish wanderlust and strike out on their own, to eventually be snapped up by pet lovers or speculators. There were even cases of diamond-producing quirls being abducted and held for ransom.)

Henderson waited until the right psychological moment; then he asked Moira to move in with him and the quirls, just the four of them living together in unwedded bliss.

"No," she said.

Understandably, Henderson was very upset. "What am I going to do with these quirls, then? I don't want them laying their eggs and overrunning my house with babies."

"Why don't you have them desexed?" Moira suggested.

"That's exactly the kind of answer I'd expect from you," Henderson said, but only later and only to himself.

Two more months passed. The face of the globe was attractive again, without pollution or litter. Every desert had been irrigated and turned into a garden producing food enough to feed everyone generously. There were huge population shifts (some previously poor countries were advertising for immigrants); 160 hectares of land was being promised for everyone in the near future. As a result of the abundance of silicon and a lower cost of mass production in all industry, the Western nations — and some of the East Block and Third World countries as well — were flooded with automatic housecleaners, "automatic chefs," solid-state TVs, miniaturized language translators, and so on.

The U.S., Italy, and Israel, among other nations, paid off their national debts and balanced their budgets. The price of gold and silver was pegged at $35 an ounce, and the whole world was now on the gold standard. (The U.S. also recommenced minting silver coins.) Every country had a favorable balance of trade. And prices were rolled back to the 1967 level.

Three English words were known universally: Stretch, Rabinowitz, and quirl. Stretch himself was being compared to all the great men of history, and had it been possible, would no doubt have been nominated for sainthood. For he had, after all, realized his dream of solving all the major ills of the world: humans and quirls were completely integrated and living together in perfect harmony.

Henderson wanted to live in perfect harmony too. And so at last he girded himself and asked Moira to move in with him and the two quirls, just the four of them living together in wedded bliss.

She said, "Yes."

And kissed him, called him darling, told him she had lots of preparations to make, kissed him again, patted the two quirls on their little heads, smiled radiantly, and left.

One of the quirls bounce-hopped onto his lap. It gazed up at him in an adoring way, said, "Quirrl, quirrl," contentedly, and nuzzled under his chin. Henderson smiled an absent smile and stroked its velvety body.

Two months later, Stretch Rabinowitz was awarded the Nobel Prizes in Chemistry, Physics, Medicine, Economics, Literature and Peace.

When he accepted these laureates, he was wearing, as a gift of the Swedish government, the tuxedo of King Gustavus Adolphus VI (1882-1973), who had also been 6'9" tall. The entire text of Stretch's acceptance speech was:

"This is the most unusual day of my life. I've never been out of my sneakers and jeans and into a King's tux."

On that same day, an ocean and a continent away, Henderson said, "This is the weirdest day of my life — I've never been out of my Guccis and Puccis and into a rented yellow tuxedo before," as he and Moira Andrews became husband and wife.

Nine months later, after history's first global referendum, Stretch Rabinowitz was pronounced Father of Quirls.

"This is just the beginning," said the U.N. Secretary General. "You will have many, many more honors."

"Yes, sir," Stretch said humbly.

At the same time, in California, Del Henderson was pronounced father of girls.

"Only triplets — but this is just the beginning," Moira said. "We will have many, many babies."

"Yes, dear," Henderson said numbly.

Only ten per cent of H. L. Gold's 7 million published and broadcast words are science fiction, but they include "Trouble with Water," "The Man with English," "The Biography Project" and many other classics. Galaxy, the most acclaimed of the dozens of magazines he's edited, was also the most widely read. His single unfulfilled ambition: "I'd give my right arm to be ambidextrous!"

Bill Pronzini, a native Californian, has written 25 novels, most of them mystery/suspense, one science fiction and one mainstream (The Cambodia File, with columnist Jack Anderson). He has also written 250 short stories, articles and essays and edited or co-edited 16 anthologies of science fiction, mystery/suspense, and fantasy/horror, several of which have been Book-of-the-Month Club and Literary Guild selections.

—output—

(Continued from page 5)

Finally, the Arizona Public Service Co. is scheduled soon to go on line with a 225-kilowatt photovoltaic system along Phoenix's Sky Harbor Airport. The facility will feed sufficient electricity into the area's power grid to meet a substantial percentage of power requirements at the airport.

THE JERK FINDER

For those of you out there prone to calling in during radio talk shows to scream obscenities, lambast the d.j. or simply spout the latest intergalactic plot to take over the universe — let this be a warning. Your days of airing your craziness are nearing an end, thanks to a (oh no, not another one) computer.

The computer-based caller-selection process, known commercially as the "electronic producer," is more lovingly referred to by radio folks as "the jerk finder."

Here's how it works: A Commodore VIC-20 microcomputer allows the person taking the calls to record certain descriptive information about the caller — for example, first name, address, age, topic of discussion — and this information is passed to the d.j. conducting the talk show, before he picks up the phone. Artful dodgers can still slip by the system, but the few stations using the process report that it helps screen out some of the real jokers.

HOW'S THAT AGAIN?

If the rock concerts, headphones, jackhammers, low-flying jets and other commonly occurring noisemakers have you stuffing your fingers (or more exotic forms of stoppers) into your ears without much relief, a solution may be at hand (or is that ear?).

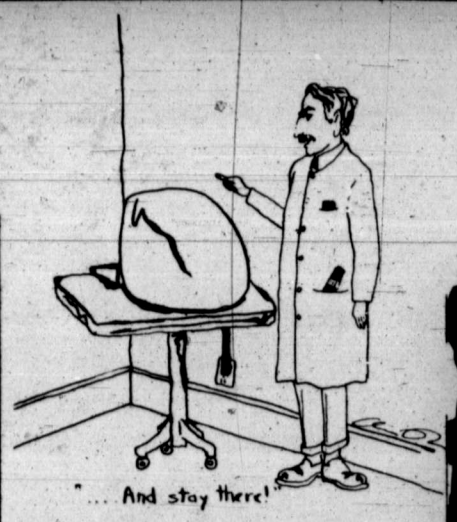
A brand of Canadian ear plugs recently introduced into the U.S. is made from cotton, oils, and wax that have been molded, cooked, and cooled to produce a cylinder about the size of a cigarette butt (just in case you've ever stuffed a couple of those in your ears before).

The idea behind the "Hear Saver" is that when inserted in the outer canal of the ear, body heat and earwax mold them to the exact contours of the user's ear. Whereas most ear plugs reduce loud noise by about 15 decibels, the Hear Saver provides 24 decibels of reduction.

COMPUTER ETIQUETTE

Computers can be right or wrong, but can they be good or bad? Apparently some of the nation's colleges think so, and are offering such courses as "Moral Issues in Computer Science" and "Ethical and Social Impact of Computing."

"To be literate, students have to know how computers affect them as human beings," says a professor at Rensselaer Polytechnic Institute, which began a computer ethics class in 1981. A similar course at Old Dominion University delves into such philosophical questions as who's to



blame if a computer causes a disaster.

A professor at Illinois Institute of Technology reports that his computer ethics course draws some computer-industry employees. Meanwhile, Dartmouth College, which will offer such a course this year, requires computer science master's candidates to ponder the morals of bits and bytes.

The sensitive moral and ethical questions involved in such course offerings leave some doubt as to whether the whole idea is a good or bad one. We're running it through our computers now, and we'll let you know what it thinks.

SUPERCOMPUTER MOVIEMAKER

It's called the Cray X-MP/22 supercomputer, and it's valued at $12.6 million. But you may soon see its handiwork for a mere $5 at your local movie theater.

The supercomputer, developed by Cray Research, Inc., Minneapolis, has been leased to Digital Productions, a Los Angeles-based hi-tech moviemaker. The company specializes in creating high-quality, high-resolution film images for the entertainment, industrial, and scientific communities, using a process called "digital scene simulation."

Digital has developed software programs that allow the Cray supercomputer to generate realistic images and special effects on film, such as those employed in Walt Disney's *Tron*. In fact, Digital's founders and principals, John Whitney Jr. and Gary Demos, received screen credits for their roles in shaping the use of digital scene simulation in *Tron*.

RESEARCH MAGS

A growing number of colleges are taking to the printing press as a means of getting their research news into circulation, although they're also a glossy pitch for money.

The University of Texas at Austin, for instance, publishes a quarterly journal named *Discovery*. It's free circulation was recently boosted to 8,000 from 3,000 by increasing the number of donation-prone foundations on the mailing list. Penn State's *Research/Penn State*, sent quarterly to about 9,000 readers, hopes to attract faculty and students, as well as dollars.

We invite your comments, opinions and information. Send your letters to Input, 1680 North Vine, Suite 900, Hollywood, CA 90028.

PAUL CLSWARD • CHRISTOPHER THOR

VOTE!

For Your Favorite Rock All Stars!

Pictured above are the rock stars selected by PLAYBOY readers as the best in their categories in last year's Playboy Music Poll. (How many of them can you identify?) More importantly, can you guess who this year's selections will be?

For a full list of nominees, a mail-in ballot, and a chance to make your vote count in this year's poll, check out the November issue of PLAYBOY at newsstands now. Also in this issue: Should College Athletics Be Abolished?, a far-out interview with Frank and Moon Unit Zappa, the beautiful ex-stews of Braniff, plus lots more. Don't miss November PLAYBOY.

In November Playboy On Sale Now

PAYOFFS

(continued from page 10)

tween inventor and employer. In other words, hot inventors may soon have bargaining clout akin to that of an NFL free agent.

Needless to say, the prospect of paying scientists for inventions above and beyond their salaries has some people in industry aflutter. As one source in the aerospace industry put it, "What should I hire somebody and pay him for an invention when I'm already paying his salary?" With so many inventions coming out of American laboratories, and with Americans so fond of taking their disputes to court, there are also fears that disputes over the value of inventions will tie up the Patent Office for years: "They're talking about one arbitrations board, but if this law goes into effect you'll have to have a board for every company." Rather than battle its own employees over their inventions, and pay them exorbitantly, the source added, many companies might look elsewhere (to outside consulting firms perhaps) for the bulk of their research.

Supporters of HR 6635 doubt that passage will cause such dramatic effects and are suspicious of industry motives. "Of course the corporations don't want the law," said a counsel to the House Judiciary committee. "They don't want to give an inch if they don't have to." Many of the world's industrialized nations (England, France, Germany, Sweden and Japan) have had a law like this for many years, "and the world isn't coming to an end," the Judiciary Committee lawyer added. In any case, the major research and development firms won't have to worry just yet. The bill allowing inventors to negotiate the value of their inventions is only one of more than 300 bills pending before the Judiciary Committee at this writing.

Even if HR 6635 does become law, corporations will probably continue to generously reward inventors who made exceptional contributions. General Motors gives out only one company-wide award for patents and inventions ech year, but it's a nice one. Between ten and twenty of GM's scientists and engineers win the coveted Kettering Award, worth $5000 to each winner. To coincide with the Patent Office's National Inventors Week each February, Boeing Aerospace makes a handful of special awards, ranging from $5000 to $10,000. Honeywell offers the Sweatt awards, honoring not the company's perspiring computer mavens but its honorable founder, Harry W. Sweatt. Around forty lucky winners each year go on an all-expense-paid trip, worth up to $2,500. Just to make sure Honeywell gets its money's worth, the trip isn't *all* fun and games; the Sweatt award winners take a junket to their favorite technical conference. (We can only hope that these dedicated scientists discover that the conference in question just happens to be in Honolulu or Bermuda.) The Sweatt award also carries $350 with it for the genius' long-suffering husband or wife. "We think the spouse should get something out of it," says a Honeywell spokesperson.

There may also be some less tangible recognition for an inventor. At Texas Instruments, there's a hierarchy of Fellows whose status equals that of top executives and whose names are listed in the annual report. Sometimes the prestige of making an important discovery outweighs even the greatest financial rewards. "People are usually interested in recognition as much as renumeration," said a Texas Instruments spokesman. "A lot of them would rather work in their labs than go on cruises." Depending on whose lab you work in, it might actually be more fun than sailing the deep blue sea. As a spokesman from Mattel put it, "How many of us get the opportunity to play with games all day and make a living at it?"

What's Your Latest Invention?

BY PAUL ROSTA

With inventions constantly pouring forth from the nation's research labs, it certainly seems as if scientists sneak into the laboratory at all hours to play with their sophisticated "toys." Most inventors aren't engaged in creating new variations on Pac-Man, though, but work in slightly more straight-laced fields like computers, energy and aerodynamics. Even people in the industry sometimes have a hard time keeping up with the latest developments, and figuring out which new inventions are most important. "When people ask me, 'What's your latest invention?' I say, 'This week's or last week's?'" cracks a rather bewildered spokesperson for Hewlett-Packard. This probably helps explain why people sometimes demur when asked to single out one of a company's more recent achievements; something else may come along tomorrow.

Companies aren't always shy about revealing their latest wonders. At Honeywell, they take pride in a superduper chip that can hold 450,000 transistors. A less spectacular Honeywell invention, from their Visitronics group in Denver, was recently reported in *High Technology* magazine (as were subsequent examples in this section). Visitronics developed a system that focuses a single lens reflex camera automatically, thanks to the aid of a special sensor chip.

Just as the computer companies inch over into electronics, we find the electronics companies in slightly unexpected areas. At Texas Instruments, the man who brought you the integrated circuit, Jack S. Kilby, inspired a project that combines a photovoltaic collector and a fuel cell. Because of a novel combination of hydrogen and bromine, the fuel cell produces more electrolyte on each round. As a result, the device collects sunlight and produces electricity, with nary a loss in between. And while we're on the subject of alternate energy sources, Amoco's researchers have invented a catalyst that transforms crude, low-grade shale oil into refined, top-grade fuel oil in one fell swoop. Amoco's device may help renew interest in now-dormant synthetic fuels development.

Some of the more imaginative inventions are far afield from the company's main product line. Fluid mechanics research at McDonnell Douglas yielded a device that can perform microbiological tests on astronauts deep in space. It's not likely that the ingenious electrophoresis system will find immediate use for its original purpose, which was to accompany American astronauts on NASA's abandoned Man to Mars program. The aerospace engineering company is also developing a prototype laser gyro, which may someday make mechanical gyros used in aeronautical navigation obsolete. Often inventions are refinements of already existing systems, but occasionally old systems will be applied to new devices with surprising results. George Bowley, who tinkers with guitars when he's not directing fiber optics research at Dynamic Systems in Virginia, decided to mix business with pleasure, and came up with the world's first fiber optics guitar which uses a photodetector instead of magnetic pickups. The photodetector picks up the light emitted from a diode at the other end of the fiber string, and senses the light emissions when the string vibrates. The amount of light varies with the vibrations of the fiber string, and the light signals are converted back into sound.

Even if you're not a researcher for a major corporation, there is still a theoretical chance that you can slip an invention in through the back door. Not, however, if you're one of those inventors who approach McDonnell Douglas and others with devices to gas hijackers or stab them in their seats. Still, the company continues to read outside suggestions, outlandish as they may be.

While companies will continue to provide incentives for talented and ambitious inventors, people in the industry like to point out that inventors are not the sole reason for a big corporation's existence. The business of America's research and development laboratories is still business, as Calvin Coolidge would have been delighted to discover. "The invention is just one small item in the process," said a spokesperson for McDonnell Douglas. "If the salesman can't sell it, or the guy in production can't make it, it doesn't mean anything." Because creativity won't necessarily guarantee success of an invention, "if you build a better mousetrap, the world won't necessarily beat a path to your door." In which case, the frustrated but undaunted inventor can always pick up his patent and head straight for another career. That's what happened to one shrewd inventor who won a patent for his device to guide boats over treacherous river shoals. While scientists usually prefer the rewards of invention to those of politics, most of us can be glad Abraham Lincoln felt otherwise.

Paul Rosta

Paul Rosta, originally from Boston (where he graduated college just last year), has moved to Los Angeles where he hopes to break into the big time.

[redacted]

Many smaller debacles parade through memory. Some of them have to do with the never-ending search for a more efficient car engine. One fondly remembers Cow Magnets attached to the fuel lines, and the Water Injectors which made J.C. Whitney a fortune.

And let us not forget the Wankel Rotary Engine. Developed as an alternative to the traditional piston, or "reciprocating" engine, it is based on an entirely different design principle — it has no pistons, it has rotors. One Mazda expert, who has worked on imported cars for over 35 years and prefers not to be named, explained it this way: "Both the Wankel engine and the traditional piston have combustion chambers which expand and contract, to compress the fuel.

"The rotary engine combustion chambers are an elliptical, diminishing-type rotor that compresses the fuel. A piston engine has pistons that compress the fuel. And that's the basic difference." When the Wankel first came out it was ballyhooed as being the most fuel-efficient, emission-free engine on the market, and the car of the future.

What happened? The mechanic just grinned ruefully. "In my opinion the Rotary simply doesn't have the longevity of the reciprocating engine, and that's all there is to it. They're not as bad as some people make out — but not as good as Mazda would like you to believe. By virtue of the way they are built, they cannot seal as well as a reciprocating engine. The problem is the compression seals — what you call the 'rings' on a reciprocating engine. The seals are built into the rotor blades, and the wear and tear factor is unbelievable. They just don't seal as long. Mazda made a bunch of crap about how they were emission free. It's horses--t. They're just as bad as a reciprocal engine, if not worse, because they tend to run rich. It shows up under the infra-red."

Mazda spent millions of dollars in the late Sixties perfecting their compression seals, and now they claim to have the problem under control. But the exorbitant claims made by Mazda just about killed the Wankel engine — and it is only now beginning to make a comeback.

The Audio-Visual industry has had its share of snafus as well. Does anyone remember hip-pocket records? How about stereo record players for your car?

Remember Videodisks?

While it's true that videodisks haven't flopped altogether, they haven't been the cure-all that their promotors promised.

Videotape machines have been around for a long time, but until recently they were bulky, expensive units that were restricted to major industrial uses. Then units became available to educational institutions with hefty budgets. And then . . . Of course, everyone knows that the only reason to own a videotape unit in your home is to tape shows for later viewing, right? Then you erase them and never, ever play that copy of *The Godfather* or *Casablanca* or *Navy vs. The Night Monsters* again, right?

And of course, Universal and Paramount and MGM and Disney believe you as much as I do. We all know that the whole idea behind videotape recorders is to develop a library of films, of classic television episodes and plays, of sporting events to enjoy over and over.

The motion picture studios and television stations have every reason to be terrified of the additional freedom and flexibility a cable TV-videotape alliance can bring. For the first time, the *very* first time, television is actually serving the public.

So how did the moguls respond to the threat? In typical cowardly fashion — first by trying to make videotape recorders illegal (as if every movie studio, television station, etc. etc., doesn't own a dozen of them), and secondly by trying to foist off the "Videodisk" concept, a unit which will not record and which will only show those prerecorded disks the networks and movie studios decide we should have.

This, in an era of $6 tickets for *Annie* the *movie*. (Who can afford Broadway shows?) Leapin' Lizards.

Luckily, the public recognized the shuck immediately. The hundreds of video stores springing up all over the country, the rent-by-mail outlets, and the growth of videotrading clubs means that the stranglehold has been broken at last.

I know of at least eight people with a copy of *Goldfinger* in their homes, and only one of them is on disk. The prices of videodisk units plummeted from $699 and $899 to less than $299; plummeted to the point where they are being given away with the purchase of a videotape unit.

It is easy to understand gnashing teeth at NBC, ABC and CBS. They're afraid that with the option to watch *The Stunt Man*, or *Macbeth*, or *La Strada* any time that they want, the public might start ignoring the mindless bilge that has passed for television entertainment the past three decades.

That, in the final analysis, is what technological advancement is all about: Choice. Freedom. And the ability to manipulate your environment to suit your own needs.

One must draw the line somewhere. Mess with our tax dollars, our health, or our transportation if you will.

But screw with our televisions, suckers, and you're *doomed*.

Steve Barnes, a regular Beyond *contributor, is the co-author (with Larry Niven) of* Dream Park, *is currently writing two more novels, and is a martial arts instructor in his spare time.*

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